A ROLE ANALYSIS EXERCISE TO MINIMIZE ROLE AMBIGUITY AND PROMOTE ROLE CLARITY IN INSTRUCTIONAL DESIGN TEAMS

by

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Abstract

This dissertation reports outcomes from a mixed methods study designed to decrease role ambiguity and clarify individual roles of members of instructional design teams (IDTs) involved in online course development in higher education institutions. Based on the empirical evidence collected and a review of the literature, a role analysis intervention based on Dayal and Thomas's (1968) role analysis technique (RAT) was implemented in three instructional design teams at a large private research university. While the pilot version of this intervention failed to elicit a statistically significant decrease in role ambiguity as measured by Pareek's Organizational Role Stress (ORS) scale, qualitative data revealed several important themes relevant to participants' perceptions of the value of the role analysis exercise in instructional design contexts. It highlighted the intervention's potential to: (a) promote collaboration between faculty and staff, (b) provide clarification of roles and expectations, (c) reveal different perspectives and expectations of roles, and (d) promote self-reflection and analysis of one's own roles. Further, it gave participants the opportunity to validate the presence of role stress in IDTs and underscored the ways in which role stressors exist within the online learning contexts. Finally, consistent with past findings, it confirmed the diverse and constantly evolving roles of individuals involved in online course development. While limited in sample size and scope, this study revealed meaningful results that can be applied to IDTs and higher education institutions involved in online course development.

Keywords: role stressors, role ambiguity, role clarification, role analysis technique, instructional design teams, online education

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Dedication

This thesis is dedicated to my husband, Prabhu, who cooked, cleaned, cared for our daughter, wiped my tears, and gave me endless support throughout my graduate studies.

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Chapter 1: Introduction of the Problem of Practice

Overview

With the rapid growth of information and communication technologies, eLearning has become increasingly prevalent in higher education (Simonson, Smaldino, Albright, & Zvacek, 2012). Over the past decade, there has been a concerted shift toward eLearning in both traditional, brick-and-mortar institutions, and institutions focused primarily on the distribution of online learning and other distance education products (Allen & Seaman, 2016). Increasingly, institutions of higher education are augmenting or replacing traditional face-to-face courses with blended and fully online courses (Allen & Seaman, 2016). Between 2002 and 2011 the number of students taking at least one online course increased by nearly 350%, from 1.6 million to 6.7 million (Allen & Seaman, 2011), and 28% of students currently enrolled in higher education take at least one distance education course (Allen & Seaman, 2016). In response to these shifts, almost two thirds of chief academic leaders stated that online learning is critical to the long-term strategy of their institutions (Allen & Seaman, 2016).

As institutions continue to adapt courses to online formats, the quality of those courses becomes a critical driver in the creation of effective and marketable education programs (Clark & Mayer, 2011). Course quality has the potential to significantly influence student outcomes (Gore, Bond, & Steven, 2000; Xu & Jaggars, 2013), student satisfaction (Bolliger & Martindale, 2004; Lee, 2010), student retention (Dietz-Uhler, Fisher, & Han, 2007; Herbert, 2006), and overall effectiveness of an organization (Koehler & Mishra, 2005; Newton, 2003; Strawser, Buckner, & Kaufmann, 2015). Therefore, institutions of higher education are challenged to create and promote genuine and sustainable learner engagement and deliver effective, high quality online learning experiences for students (Bart, 2012).

Effective online learning requires the use of a systematic process when building instruction to enable faculty and students to confidently navigate and harness the power of this fluid medium. However, creating successful online learning experiences that are grounded in and informed by research principles and best practices remains a challenge for higher education institutions. Online courses often lack design considerations and may focus only on the delivery of instruction rather than active student learning (Carr-Chellman & Duchastel, 2000; Chuang, 2010). Online courses that are designed for the mere distribution of information and lack effective online instructional design practices can result in student dissatisfaction and poor educational outcomes (Jaggars & Xu, 2016). Therefore, online learning should be designed to provide pedagogical, technological, and social affordances for meaningful teaching and learning.

Just as the quality of online courses informs student outcomes, online course design significantly informs the quality of online courses in higher education (Stevens, 2013). Ultimately, both the design *process* and *roles* of instructional design team (IDT) members are critical to the success of online course design and so the quality of online courses (Kearsley, 2000). The online course design process involves several strategic steps, including: identifying measurable learning objectives; aligning course assessments, instructional materials, and learner activities associated with the learning objectives; and selecting appropriate course technologies that support the learning objectives and promote student engagement (Discenza, Howard, & Schenk, 2002). The online course design process will also typically involve several personnel (such as instructional designers, instructional technologists, project managers, executive team members, and others involved in the instructional design process, such as faculty), with each member of the instructional design team (IDT) playing one or more crucial roles in the design, development, and eventual deployment of an online course. Together, members of the IDT,

working through the course design process, ensures the timely and satisfactory completion of the online course according to the quality standards established by the IDT and the institution more generally.

With the dynamic nature of the online course design process and the various role expectations and responsibilities of IDT members, role stressors within IDTs have the potential to affect the quality of the online courses (Boles, Wood, & Johnson, 2003; Idris, 2011; Kemery, 2006; Onyemah, 2008; Strawser, Buckner, & Kaufmann, 2015). Katz and Kahn (1978) identified three separate yet related constructs of role stress: role conflict, role ambiguity, and role overload. *Role conflict* results from the simultaneous occurrence of incompatible role demands from two or more role senders (e.g., faculty, instructional design manager, director). *Role ambiguity* occurs due to the lack of clear expectations and responsibilities (e.g., ambiguity related to faculty's role in the online course design process). *Role overload* occurs when there is lack of time and resources needed to meet one's role expectations (e.g., instructional designers expected to design and develop online courses in a condensed timeframe). Overall, role stress, "the pressure experienced by an individual as a result of organizational and job-specific factors in the form of demands and constraints that have been placed on them" (Kahn et al., 1964. p. 237), has the potential to negatively influence IDT members' performance and the quality of online course design process, and consequently, the quality of online courses delivered by higher education institutions.

Quality in Online Education

The rapid growth of eLearning makes the quality of online education difficult to define and control. As Greenberg (2010) noted, "*quality* as a descriptive term in higher education is notoriously hard to define." What is more, ensuring quality in online learning is complex and

"depends on a range of factors arising from the student, the curriculum, the instructional design, technology used, and faculty characteristics" (Meyer, 2012, p. 101). In turn, while many educators view online education as a medium that offers great opportunities for the present and the future, others have questioned the quality of instruction online education provides (Allen & Seaman, 2016). Allen and Seaman (2016) found that only approximately 30% of higher education administrators reported that their faculty recognize the value and legitimacy of online learning. The great potential of online learning is found in its flexible and asynchronous nature; however, this flexibility is precisely what has led many to doubt the quality of online courses (Allen & Seaman, 2016; Greenberg, 2010). Thus, a major challenge for online education is defining and ensuring a quality standard amidst the ever-changing nature of the online learning landscape and rapidly changing technologies.

Despite uncertainty over quality and quality standards, and the protean nature of eLearning, characteristics of quality online education will necessarily resemble the characteristics of quality education in general. While online education calls for different instructional strategies, its outcomes and instructional objectives are parallel to traditional notions of education (Anderson, 2008). Garrison (2017) remarked similarly, suggesting that "e-learning is not a radical new innovation but a return to traditional values [of education]" (p. 2). In this view, theories that have historically emerged from and been applied to traditional education can inform the creation of quality online educational experiences. As Amdrade (2015) noted, "Theories provide a foundation for training and guide instructors in establishing a quality online teaching and learning experience" (p. 1). Further, theories can offer insight into the pedagogical basis for student learning and enable faculty and instructional designers to make sound instructional strategies for the online environment (Ertmer & Newby, 2013). Therefore,

traditional and emerging learning theories can serve as the cornerstone for the design and delivery of quality online learning experiences, as they guide educators in their thinking about how students learn and process information (Ertmer & Newby, 2013).

Theoretical Foundations of Quality Online Education

Historical and emerging learning theories have implications for defining and operationalizing quality in online education. Three historical learning theories that have influenced education and guided instructional practice since the 1800s—and that now inform the design of quality online learning experiences—are *behaviorism*, *cognitivism*, and *constructivism*. *Behaviorism* focuses on the external factors that influence learning and "equates learning with changes in either the form or frequency of observable performance" (Ertmer & Newby, 2013, p. 48). The implications of behaviorism for online learning include providing students with explicit learning competencies, testing students to determine whether they have achieved the desired competencies, appropriate sequencing of instructional materials, and instructor feedback to help students monitor their progress. *Cognitivism* focuses on the importance of the acquisition of knowledge and the internal mental structures involved in how individuals acquire, process, store, and retrieve information (Ertmer & Newby, 2013). The implications of cognitivism for online learning include helping students retrieve existing information to make sense of new information, incorporating activities and assessments that allow for deep learning and transfer of knowledge to long-term memory, providing information in manageable chunks to prevent information overload, and utilizing the appropriate mode for the delivery of information (e.g., visual, audio, text). *Constructivism* draws attention to how individuals create meaning from their experiences. Learners are viewed as actively engaged in the interpretation and processing of information and the creation of knowledge (Ertmer & Newby, 2013). The implications of

constructivism for online learning include actively engaging students in the learning process to encourage personalized learning, providing students with opportunities to reflect on their learning, establishing real-life connections to the course content, and providing opportunities for collaborative and cooperative learning experiences in the online environment.

Another theory often used to support quality online and blended learning is *activity theory,* which takes into consideration the cultural contexts and historical aspects of learning (Carter, 2013). Activity theory explains learning as mediated by cultural tools and students' contributions and activities within culturally defined tools, including language. It goes beyond the learners, the interface, and the content, to take into account the social and cultural components that affect learning. According to activity theory, "activity cannot be understood or analyzed outside the context in which it occurs" (Jonassen & Rohrer-Murphy, 1999, p. 62). Therefore, a key implication of activity theory for online learning is taking into consideration learners' context and presenting "instructional materials through situated activities with the concepts represented in those materials" (Jonassen, Tessmer, & Hannum, 1998, p. 164).

Similar to activity theory, *situated learning theory* emphasizes the importance of activity, context, and culture to learning. Situated learning theory proposes that real-world activities and authentic contexts are essential for learning to occur (Anderson, 2008). Social interaction is also a key component of situated learning where students engage in a *community of practice*. Situated learning theory has many key implications for online learning, including creating activities that have real-world applications (rather than mere memory checks or recall exercises), creating problem-based learning and problem-centered activities, and providing students with opportunities for social interaction and transactions with their peers.

Along the lines of creating authentic learning experiences, *pragmatism* highlights the importance of experience-based learning and hands-on application (Siemens, 2005). One of the key principles of pragmatism is practical learning. Pragmatism proposes that students should acquire the knowledge and skills needed to solve everyday problems and situations. When designing online instruction, pragmatism calls for incorporating problem-solving methods where students learn by doing. According to the pragmatic approach, students should engage in activities that are real, purposeful, and reflect their day-to-day lives.

The complex and intricate nuances of online learning have resulted in other theories and models developed to help educators understand and adapt to these unique challenges and opportunities. Behaviorism, cognitivism, and constructivism were developed "in a time when learning was not impacted through technology . . . [and therefore] do not address learning that occurs outside of people (i.e., learning that is stored and manipulated by technology)" (Siemens, 2014, p. 15). *Connectivism* emerged as a learning theory for the digital age, positioning learning as occurring through connections within networks. Connectivism views students "as a network phenomenon influenced by technology and socialization" (Goldie, 2016, p. 1). Furthermore, given the abundance of information available to students in the digital age, connectivism underscores the importance of helping students develop *metaskills*—the ability to search, find, retrieve, and critically evaluate relevant information from various networks.

Garrison, Anderson, and Archer (2000) developed the *Community of Inquiry* (CoI) as a framework for creating engaging and immersive online, face-to-face, and blended learning experiences with the ultimate goal of helping students realize these metaskills. The CoI framework facilitates meaningful learning through three interdependent elements: social, teaching, and cognitive presence (Garrison et al., 2000). *Social presence* includes the affective

climate and relationships within the community. *Teaching presence* refers to the design, facilitation, and direction of the course. *Cognitive presence* involves the progressive phases of practical inquiry leading to resolution of a cognitive challenges. Cognitive presence—activated in the pursuit of the course academic objectives—involves learners constructing and confirming meaning through reflection and discourse in a shared online environment (Anderson, 2008). The core thesis of the CoI framework is that in an "environment that is supportive intellectually and socially, and with the guidance of a knowledgeable instructor, students will engage in meaningful discourse and develop personal and lasting understanding of course topics" (Rourke & Kanuka, 2009, p. 21). The CoI survey instrument has been widely used to measure and guide the quality of online course design (Garrison, 2017; Moore & Shelton, 2013 Swan, Day, Bogle, & Matthews, 2014).

Another example of the developmental approach to evaluating the quality of online courses is Quality Matters (QM), "a faculty-centered, peer review process that is designed to certify the quality of online and blended courses" ("Quality Matters," 2016). Developed by MarylandOnline, QM offers both a process and rubric for evaluating online and hybrid courses. "The process is formal peer review of online courses by a trained group of reviewers." (Greenberg, 2010, p. 2). The QM rubric is based on research-supported national standards of best practices in online course design and contains a set of standards that evaluates online courses on the following criteria: course overview and introduction, learning objectives (competencies), assessment and measurement, instructional materials, course activities and learner interaction, course technology, learner support, and accessibility and usability.

Several studies have been conducted to measure the validity of the QM rubric and its impact on student learning. Legon (2006) compared the QM rubric standards to the "Best

Practices for Electronically Offered Degree and Certificate Programs" endorsed by the Council for Higher Education Accreditation. The QM rubric is "fully consistent with published accreditation standards for online education" and "the implementation of QM reviews in an institution or program can serve as a major element of the quality assurance process for online education that accreditation requires" (Legon, 2006, p. 9). Hoffman (2012) reported that the QM review process can help faculty create well-designed online courses and ensure that learning objectives are aligned with instructional materials, learning activities, course technologies, and assessments.

Researchers have also explored using the QM rubric to evaluate the quality of online courses and found a positive correlation between QM adoption and increases in student retention and satisfaction (Altman, Schwegler, & Bunkowski, 2014; Ralston-Berg & Nath, 2008; Swan et al., 2012). Ralston-Berg and Nath (2008) found that "students who claim high satisfaction in online courses also significantly value all QM features more than students who claim low satisfaction generally in online courses" (p. 3), revealing a positive relationship between QM items and students' satisfaction in online courses. Likewise, Hixon, Buckenmeyer, and Barzcyk (2015) extended the work of Ralston-Berg (2014) and found that students value the QM criteria regardless of whether the course is offered in a traditional, blended, or online format.

Several frameworks and models have been developed based on principles of quality design as defined by students' mastery of desired learning outcomes (Reigelut, 2013). At the core of these instructional design models is understanding and operationalizing how learning takes place and how sound instructional design practices can yield the most efficient learning among students. These instructional design theories seek to make connections between learners, their inherent ways of learning, and the intended outcomes of learning.

Bloom's (1956) taxonomy has been widely used in online learning for describing learning objectives. Learning objectives can be used to help students recognize what is expected of them, focus on key learning activities, and organize personal study efforts. In an online environment, where students are disconnected from the physical teaching environment, well-written learning objectives can provide direction to the learning process and serve as a basis for evaluating student progress (Brown & Green, 2016). Mager (1962) proposed that a learning objective is a "description of a performance you want learners to be able to exhibit before you consider them competent" and should contain three identifiable parts: action, condition, and criterion. Dick, Carey, and Carey (2009), and Smaldino, Lowther, and Russell (2012) have proposed similar approaches to learning objectives, focusing on actions, conditions, and criteria.

A commonly used framework for establishing effective online instruction comes from Merrill (2013), who proposed that learning is promoted when learners are engaged in solving real-world problems; existing knowledge is activated as a foundation for new knowledge; and new knowledge is demonstrated to the learner, is applied by the learner, and is integrated into the learner's world. Rather than focusing on creating objectives early in the instructional design process, Merrill proposed that the first step should be creating "an instance that represents the whole problem that learners will be able to solve following the instruction" (Merrill, 2013, p. 254).

Gagné, Briggs, and Wager (1992) theorized nine events of learning to provide a systematic approach to course design, namely: (a) gain the learners' attention; (b) inform learners of the objective; (c) stimulate recall of prior learning; (d) present the stimulus; (e) provide guidance for the learners; (f) elicit learner performance; (g) provide feedback; (h) assess learner performance; and (i) enhance retention and transfer. Gagné's nine events of instruction have

been widely used in online education to design engaging and meaningful instruction for learners (Gagné, Briggs, & Wager, 1992).

Taking a different approach to instructional design, Wiggins and McTighe (2011) proposed the *backward design framework* in which "one starts with the end—the desired results (goals or standards)—and then derives the curriculum from the evidence of learning (performances) called for by the standard and the teaching needed to equip students to perform" (p. 8). This framework organizes the design process in three phases: (a) identify desired results, (b) determine acceptable evidence, and (c) plan learning experiences and instruction (Wiggins & McTighe, 2011, p. 9).

Defining Quality

While several researchers and practitioners have proposed theories as frameworks for designing quality online education, it is unlikely that a single theory can fully explain or account for how learning takes place in a technology-driven environment (Ertmer & Newby, 2013). However, a combination of various theories, approaches, and frameworks can potentially provide an adequate description of and definition for what characterizes quality in online education. In this way, irrespective of a specific theory, there are several recurring themes that inform the general characteristics of a quality online experience, such as authentic learning experiences and opportunities for interactivity and collaboration (Rossett, 2002). Creating such meaningful learning experiences requires intentional design of not only learning outcomes but also the strategies and selection of supporting content to achieve those outcomes. Thus, while certain theoretical foundations support the definition of quality in online education, it is the design process that supports the actualization of this quality.

Instructional Design

As Ertmer and Newby (2013) pointed out, "the critical question . . . is not 'which is the best theory?' but 'which theory is the most effective in fostering mastery of specific tasks by specific learners?'" (p. 61). Thus, quality course design—that is, instructional design—can be construed in terms of a series of decisions regarding course objectives and the most effective methods of making sure that students achieve those objectives (Discenza, Howard, & Schenk, 2002). Instructional design in general requires that instructors and instructional designers create course content that is functional, navigable, and accessible. Online course design requires that instructors and instructional designers create courses that are also effective in a technology-driven environment (Discenza, Howard, & Schenk, 2002).

Instructional Design Process

Over the years, the definition of instructional design (often used interchangeably with *course design*) has evolved significantly. Reigeluth (1983) saw instructional design functionally, as the act "of deciding what methods of instruction are best for bringing about desired changes in student knowledge and skills" (p. 7). More recently, instructional design has come to be viewed as "the systematic and reflective process of translating principles of learning and instruction into plans for instructional materials, activities, information resources, and evaluation" (Smith & Ragan, 2005, p. 4), all based on "learning theories, information technology, systematic analysis, educational research, and management methods" (Morrison, Ross, & Kemp, 2007, p. 6). The view of course design as a process, while an important corrective to the functionalist perspective, can result in the oversight of the theories, research, and practices that undergird the quality of that process.

In this way, the application of a robust instructional systems design process is a key predictor of a quality course (Stevens, 2013; Zheng & Smaldino, 2003). The primary goal of the course design process is to create an online course that meets the desired learning objectives and complies with national standards of best practices to promote student engagement, retention, and satisfaction ("Quality Matters," 2014). Piskurich (2000) discussed the significance of instructional design:

> The instructional design will help you create good, clear objectives for your program that can be understood and mastered by your trainees. It will help you develop evaluations that truly test for the knowledge and skills that our objectives are based on. It will help you or whoever instructs that course to facilitate the participants' learning effectively and efficiently and, most important, it will help you make sure that what is in your program is what your trainees need to learn. This reduces wasted time, wasted money, and wasted opportunities for helping to develop more effective employees who, through their knowledge and skills, increase corporate profitability. (p. 3)

Piskurich's (2000) insights reveal the significance of instructional design as a process to ensure the quality of online courses. Dijkstra et al. (1997) illustrated the relationship between process and product with respect to instructional design. They described instructional design as "a certain mode of producing or developing instruction as well as a product that defines an educational setting" (p. 27). In this view, instructional design is a process that results in the creation of a product—the course—in an educational setting.

The online course development process is complex and multifaceted, involving not only specialized knowledge in the content area but also the allocation of time and consideration to incorporating sound pedagogical practices in a technology-driven environment (Goodyear, 2005;

Redmond, 2011). Other factors that add to this complexity include expertise in implementing educational technologies, considerations for user experiences, and the faculty's comfort with using technology to develop materials and interact with students (Stevens, 2013). The increasing complexity of the online course development process, requiring new techniques and skills with the development of new technologies, has led many higher education institutions to adopt a team-based approach to instructional design, often guided by standards established by instructional design teams (IDTs) (Hixon, 2008).

Instructional Design Team Roles and Responsibilities

Instructional design teams (IDTs) can include instructional designers, instructional technologists, project managers, executive team members, and others involved in the instructional design process, such as faculty. Thach and Murphy (1995) identified 11 roles for distance education professionals, including: "instructor, instructional designer, technology expert, technician, administrator, site facilitator, support staff, editor, librarian, evaluation specialist, and graphic designer" (p. 64). Each of these individuals could be involved in the instructional design process, assuming specific roles with the potential for overlap between the roles performed by them. Thus, an online course design process can involve each member of a team playing one or more key roles to ensure the timely and satisfactory completion of the online course design and development tasks, resulting in a course that is compliant with the quality standards established by the IDT.

Instructional designers. Dooley et al. (2007) pointed out the complex and multifaceted roles that instructional designers play in the course development process. They highlighted the core competencies for instructional designers, including adult learning, instructional design and course development, instructional technologies, accessibility, evaluation, and training. Ritzhaupt

and Kumar (2015) conducted an exploratory study to gain insight into the skills and knowledge essential to instructional designers within higher education. Semi-structured, online interviews were conducted individually among eight IDs in the United States. The results of the study showed that the role of instructional designers in higher education is not limited to supporting online faculty but is often extended to include faculty who teach face-to-face and hybrid courses. Further, instructional designers were found to take on roles outside instructional design, serving as system administrators, performing website maintenance, and providing program assessment. According to the study, the skills and knowledge essential to instructional designers include: knowledge of instructional design and learning theory, soft skills, teaching experience, willingness to learn, communication skills, ability to juggle multiple projects, time management, and project management (Ritzhaupt & Kumar, 2015).

Given the complexity of roles and responsibilities within IDTs, Pan and Thompson (2009) conducted an exploratory, ethnographic case study to gain insight into the individual and team traits of IDTs. Three particular elements were identified as critical contributors to instructional designer's job performance and successful collaboration among IDT members: team member *expertise*, *motivation* (both external and internal) to complete an instructional design project, and a positive *team culture*. Successful functioning of the IDT was found to have a direct correlation to individual expertise, work motivation, and positive team culture.

With respect to instructional designers' roles and responsibilities in higher education, several themes emerge from the studies conducted by Pan and Thompson (2009) and Ritzhaupt and Kumar (2015). One key finding across the two studies is the need for instructional designers to possess *soft skills* to effectively navigate the different needs and changes in higher education. Ritzhaupt and Kumar (2015) found that soft skills such as diplomacy, persuasive skills,

relationship building, and emotional intelligence are essential, considering the service role of instructional designers. Pan and Thompson (2009) found that instructional designers are often required to have the ability to handle conflict effectively, especially conflicts that arise between the team and faculty.

Another theme is the need for instructional designers to be proactive, motivated, and willing to learn, considering the ever-changing nature of online education. Pan and Thompson (2009) found that in terms of expertise, following a *task mental model*, assertiveness, and proactivity were the key contributing factors to instructional designer job performance. In terms of work motivation, instructional designers' growth needs—advancement, achievement, responsibility, and work itself—were significant contributing factors to their job performance within IDTs. Instructional designers who participated in Ritzhaupt and Kumar's (2015) study also reported that being a self-starter and able to self-learn were crucial to their job responsibilities.

Dicks and Ives (2008) interviewed eight instructional designers to find answers to the following two questions: "What constitutes good instructional design?" and "How do instructional designers create good design?" (p. 1). Echoing the findings of Pan and Thompson (2009) and Ritzhaupt and Kumar (2015), Dicks and Ives (2008) noted the importance of soft skills to the success of instructional designers. Additionally, Dicks and Ives identified different responsibilities that the role of instructional designers call for, such as "establishing credibility, validating their expertise, letting content experts think they are driving the project, finding middle ground, identifying the needs of clients, making design decisions, managing commitments, aligning perspectives, flagging constraints, compromising, showing leadership,

building relationships, mentoring clients, teaching, using learner feedback to persuade, and managing resources" (pp. 7–9).

Given the complexity of responsibilities within the position, Hokanson and Miller (2009) identified four major roles that IDs assume within IDTs: instructional artist, instructional architect, instructional engineer, and instructional craftsperson. Tracey, Hutchinson, and Grzebyk (2014) classified the roles and skills of instructional designers to include "the establishment of design precedents, reflective thinking skills, and the foundations of professional identity" (p. 315). Campbell, Schwier, and Kenny (2009) contended that IDs often serve as agents of social change within institutions. Their interviews with 20 instructional designers at 6 Canadian tertiary educational institutions revealed that IDs' social-change agency roles can be classified into four categories: interpersonal, professional, institutional, and societal.

The theme of IDs serving multiple roles was also emphasized by Moskal (2012), who found five major themes with respect to the roles of instructional designers' skills and traits, including: flexibility, moral purpose, relationship building, time and project management, and ongoing professional development. Moskal's (2012) study highlighted the fact that IDs' roles often extend beyond the design of courses, and that IDs often act as *information leaders*. Similarly, Liu, Gibby, Quiros, and Demps (2002) interviewed 11 instructional designers to determine what their responsibilities and challenges were, and what skills were important for their effective job performance. They found that balancing multiple roles is one of the major challenges that instructional designers face; instructional designers often perform multiple roles when working with clients. Furthermore, the participants pointed out that the instructional designers were often asked to function as project managers, spotlighting the complex nature of ID work.

Faculty. Two common approaches to online course design are the team-based approach and the faculty-based approach. The team-based approach is "typified by the large course teams represented by broad-scale distance educational institutions" (p. 433), whereas the faculty-driven approach "puts the instructor in the roles of the subject matter expert, course designer, manager, and implementer" (Hawkes and Coldeway, 2002, p. 434). Even in institutions that follow the team-based approach, faculty play crucial roles in the design process as subject matter experts (Schwartzman, 2006). These roles include, but are not limited to: reviewer of work, test student, coach to other faculty, project manager, graphical consultant, evaluator, and help-desk consultant (Hawkes & Coldeway, 2002). Reilly, Vandenhouten, Gallagher-Lepak, and Ralston-Berg (2012) also confirmed the complex roles faculty play in eLearning, which include serving as the content facilitator, course designer, collaborator, and technologist. They observed that the role of faculty requires them to work collaboratively with instructional designers during the instructional design process to create learning activities, design assessments, and develop course materials. They pointed out that ensuring faculty know "how to interact with support staff is a best practice for e-learning development" (p. 101).

Akdemir (2008) conducted semi-structured interviews with four faculty members to investigate their experiences in online courses. Akdemir found that the faculty's interest in using technology and their skill level had a positive correlation to their role in online course design—"faculty members with more technical skills stated that they had designed and developed their own online courses" (p. 100). On the other hand, "faculty members with less technical skills declared that they designed their own online courses but they received technical help from assigned graduate assistants to develop their courses on the online course management systems" (p. 100).

Other studies conducted by Gerlich (2005), Strawser, Buckner, and Kaufmann (2015), and Koehler and Mishra (2005) also highlighted the key roles that faculty play in the design of online courses. Several factors affected the roles that faculty found themselves in during the course design process, including faculty members' interest in technology, time they can devote, the availability of resources, and the presence of a course development process (Akdemir, 2008; Oblinger & Hawkins, 2006). Furthermore, Zheng and Smaldino (2006) suggested that additional research should investigate how instructors "look at their role as instructional designers and how they apply instructional design elements in designing distance courses. There is a need to examine how distance instructors understand and apply instructional design elements" (p. 35). Conceicao (2006) suggested that increasing awareness of instructors' roles in the online course design process and bringing to light the need for better faculty training and support among administrators and other executive decision makers are essential to improving the quality of online education. Conceicao (2006) wrote, "experience is a valid source of knowledge and that one way to understand how faculty members experience online teaching is by studying situations using faculty members' reconstructed experiences and elaborating on the meaning they assign to those experiences" (p. 27). This approach can lead to insights into faculty's experience and perceptions of their roles in designing and developing online courses.

Instructional technologists. The increased adoption and use of technology in academia has resulted in the development of and appreciation for the specialized role of instructional technologists. Shell, Crawford, and Harris (2013) defined the role of an instructional technologist as being "responsible for understanding the goals of the course and recommending and implementing appropriate technologies for meeting these goals" (p. 150). Some of the most commonly used metaphors for the role of an instructional technologist include: consultant,

computer-aided instruction developer, trainer, lab manager, distance learning expert, and technician (Surry, 1996). While the primary focus of instructional technologists appears to be the implementation and use of technology, the diversity of information communication teams in higher education institutions often require them to adopt additional roles such as conducting training, performing special projects (such as designing a computer lab), developing instructional materials, and even providing pedagogical support and guidance in the design and development of online courses (Sugar, 2005).

Under the broad umbrella of supporting technology adoption and implementation, instructional technologists can function as technology coaches (Sugar, 2005). Although not all instructors may need a technology coach, those who are reluctant or skeptical about new technologies may benefit from instructional technologists assuming a mentoring role (Sugar, 2005). “They need the extra confidence boost and cajoling from their technology coach to feel confident to start using the particular technology. They are not ready to learn the necessary skills; they need to have empathetic patience from the particular technology coach to proceed” (Sugar, 2005, p. 564). Furthermore, in assuming the role of a technology coach, instructional technologists may move beyond the technical considerations and interpret technology needs to suit instructor’s needs and context (Sugar, 2005).

To examine the various characteristics of instructional technologists, Oliver (2002) conducted in-depth interviews. Oliver highlighted major activities of instructional technologists’ work: (a) collaborative curriculum development; (b) administrative, technical, research or management functions; (c) engagement in broader educational issues; (d) learning as well as teaching during collaboration; and (e) being responsible but without authority. Hixon (2008) also noted the collaborative nature of instructional technologists’ job function, helping faculty

determine possible technology options to support learning objectives. Even though instructional technologists support faculty and other stakeholders in key technology choices, their authority in the decision-making process appears to be limited (Hixon, 2008; Oliver, 2002). While instructional technologists may bring their technical expertise to the course design process, the ultimate decisions on the tools and technology-related practices to be implemented often rests with the subject matter expert (i.e., faculty) or the instructional designer.

Considering the various roles that instructional technologists play, İzmirli and Kurt (2009) conducted a descriptive research study to examine the key competencies of an instructional technologist. In addition to noting the traditional roles and technology competencies (hardware, software, and virtual environments), they highlighted key social competencies such as cooperative working, communication, and planning, as well as educational competencies such as knowledge in adult education, instructional design, consulting, and technology integration. These findings are in accordance with existing literature on the diverse roles and responsibilities of instructional technologists (Campbell, 2008; Palmieri, Semich, & Graham, 2010; Shell, Crawford, & Harris, 2013; Sugar, Hoard, Brown, & Daniels, 2012). Overlap in the roles and responsibilities of instructional designers and instructional technologists is evident, and the scope and complexity of the online course development process may require that the roles be interchangeable.

Role Stressors in Instructional Design

Role Theory

Considering the diverse, multifaceted, and complex nature of the instructional design process and IDT member roles, it is useful to explore how the process and associated roles affect the design and, therefore, the quality of online courses. A *role* "is a set of behaviors pertaining to

a particular task or social function" (Collins, 1982, p. 109). According to *role theory*, a role is an individual's behavior in relation to his or her social environment (Katz & Kahn, 1978). Katz and Kahn (1966) stated that the "role that a person takes is the central fact for understanding the behavior of the individual" (p. 45). *Role behaviors*, which are "the recurring actions of an individual, appropriately interrelated with the repetitive activities of others so as to yield a predictable outcome" (Katz & Kahn, 1978, p. 189), often result from organizational, social, and personal demands. Katz and Kahn (1966) also stated that individuals may take on multiple roles and activities within an organization, and may change roles (Katz & Kahn, 1978). When individuals assume one or more roles, they are expected to perform certain activities associated with those roles, even though the specific functions may not be explicitly known by the individuals. This lack of clarity can lead to frustration both individually and corporately, resulting in a failure to fully meet objectives.

Kahn et al. (1964) defined *role stressor* as "the pressure experienced by an individual as a result of organizational and job-specific factors in the form of demands and constraints that have been placed on them" (p. 237). According to role stress theory, there are three major types of role stressors: role conflict, role ambiguity, and role overload (Katz & Kahn, 1978; Rizzo, House, & Lirtzman, 1970). *Role conflict* is the simultaneous occurrence of two or more incompatible role demands where compliance with one makes it more difficult to comply with the other (Katz & Kahn, 1978). *Role ambiguity* is the lack of a clear set of role expectations required for the adequate performance of one's role (Katz & Kahn, 1978). *Role overload* is the lack of adequate time and resources needed to meet one's role expectations (Spector & Jex, 1998). Conceptually, all three components of role stress—role conflict, role ambiguity, and role overload—are referred to as role stressors (Boles et al., 2003; Kemery, 2006; Onyemah, 2008), with each

individual factor having the potential to significantly affect the quality of the design process and ultimately the quality of the course.

Stressors in Instructional Design Teams

Considering the complex nature of instructional design teams (IDTs) and the roles that instructional designers, instructional technologists, and faculty play within them in the online course design process, understanding the dynamics of these teams and the potential challenges that could arise due to role stressors can potentially improve the quality of the course design process and the course itself. Research on IDT members reveals common themes related to collaboration and team dynamics, including balancing multiple roles (Larson, 2005), the significance of team culture (Macpherson & Smith, 1998; Yusoff & Salim, 2012), individual and team traits of IDTs (Pan & Thompson, 2009), and social and intellectual skills (Dicks & Ives, 2008). Briggs (2005) noted the, "potential challenges with role overload, role ambiguity, and role balance (e.g., time spent on each role)" (p. 264) within IDTs. Clear roles and responsibilities are essential to ensure successful job performance as well as efficiency in IDTs, and the quality of the courses produced by these teams (Briggs, 2005). While other studies have explored the effects of role ambiguity, role conflict, and role overload during online course delivery (Arbaugh, 2004; Bork & Rucks-Ahidiana, 2013; Heuer & King, 2004), fewer studies have examined the effect of these role stressors among IDTs during the online course design process.

Summary of Literature Review

The problem of a lack of effective design practices in the development of online courses is supported in the literature and can result from a complicated interplay of several factors. Research sheds light on the complexity of instructional design for online courses and the multifaceted and diverse roles assumed by individuals within instructional design teams (IDTs)

(Dooley et al., 2007; Hawkes & Coldeway, 2002; Hixon, 2008; Oliver, 2002; Pan & Thompson, 2009; Ritzhaupt & Kumar, 2015; Sugar, 2005; Thach & Murphy, 1995). Essential roles of instructional designers and faculty are highlighted as well as traits that contribute to successful job performance. Specific to the roles and responsibilities, future researchers could focus on the effect and practical use of group motivation in IDTs. Pan and Thompson (2009) suggested that, at both a team and organizational level, more research is needed to address group motivation. They proposed groupthink as a potential concern to team decision making. The effect of work empowerment on instructional designers' job performance. Pan and Thompson (2009) pointed out that "though employee's work empowerment has a positive effect on job performance, whether they are capable and whether they are willing to be empowered may be two legitimate concerns" (p. 49).

Ritzhaupt and Kumar (2015) proposed that "the location where an instructional designer is housed has implications for his or her job role within the organization" (p. 64). Some higher education institutions hire instructional designers within the units they support while others have centralized instructional design staff in a shared center. Also, there may be variability in the roles that instructional designers serve among the various types of higher education institutions—private colleges, public universities, community colleges, etc. While some participants of Ritzhaupt and Kumar's (2015) study indicated that their academic degrees had significantly prepared them for the instructional design career, others noted that these academic programs could be improved to better prepare graduates "for the unique conditions found in the context of higher education" (p. 65). Future research could focus on ways that academic programs could address the growing needs and changing demands that instructional designers face in higher education.

Role stressors in IDTs can contribute to online courses not reflecting effective instructional design practices. One key gap in the literature is how the three major role stressors—role conflict, role overload, and role ambiguity—impact the quality of the online course design process, and consequently, the quality of online courses delivered by higher education institutions. While Briggs's (2005) study addressed role stressors broadly among academics in online learning, existing literature does not examine how role stressors impact the effectiveness of IDT members, specifically. Furthermore, much of the existing research literature has focused on instructional designers and faculty, and overlooked other key players within IDTs, such as instructional technologists, project managers, support staff, executive team members, and teaching assistants. Given the rapid growth of online education and the increasing need to ensure student retention and satisfaction, future research could examine the effects of role stressors on the quality of the online course design process with the purpose of enhancing the design process, and thereby improving online course quality.

Despite advancements in synchronous and asynchronous technologies, online learning presents a unique set of challenges, including varying technical skill among teachers and students, their preparedness for teaching and learning online, and the availability of institutional resources such as student services and development programs to support diverse populations. A key factor that influences learning experiences in online courses is course design (Stevens, 2013). While several frameworks and models have been developed to create effective online instruction (Dick, Carey, & Carey, 2009; Gagné, Briggs, & Wager, 1992; Garrison, Anderson, & Archer, 2000; Mager, 1962; Merrill, 2013; Wiggins & McTighe, 2011), designing meaningful student learning experience requires "instructional design needs to be sufficiently flexible and to

ensure that learning activities and tasks are designed to take learners' needs and perspectives into account" (McLoughlin & Oliver, 2000, p. 62).

A critical aspect of instructional design is the process by which IDT members create online courses and the roles that they play in the course development process (Dooley et al., 2007; Koehler & Mishra, 2005; Pan & Thompson, 2009). Existing literature highlights the multiple roles and responsibilities assumed by individuals involved in the instructional design process as well as the potential for overlap between roles. The challenge for institutions is creating processes and systems that support individuals who are required to design, develop, and deliver quality education. Given the complexity of IDT members' roles, future research should examine the influence of role stressors in IDT members' practice and performance (Arbaugh, 2004; Briggs, 2005; Bork & Rucks-Ahidiana, 2013; Heuer) and, specifically, the potential of role stressors to influence the online course development process and the quality of courses.

Chapter 2: Needs Assessment

Overview

At the core of instructional design is understanding and operationalizing how learning takes place and how instructional design practices can contribute to the most effective learning among students. Individuals involved in the instructional design process assume several roles and responsibilities. Some of the major challenges experienced by instructional design team (IDT) members are: working with subject matter experts and helping them realize the need for and value of instructional design; collaborating with other key stakeholders throughout the process to assess and ensure quality standards; and in all this, managing instructional design across multiple projects and keeping track of progress (Dicks & Ives, 2008; Hawkes & Coldeway, 2002; Pan & Thompson, 2009; Ritzhaupt & Kumar, 2015; Shell, Crawford, & Harris, 2013; Sugar, 2005).

Considering the complex nature of the online course design process and the various role expectations and responsibilities of the IDT members, role stressors within IDTs have the potential to affect the quality of online courses (Boles, Wood, & Johnson, 2003; Idris, 2011; Kemery, 2006; Onyemah, 2008; Strawser, Buckner, & Kaufmann, 2015). A growing body of research highlights the negative effects of role stressors on job performance and satisfaction (Idris, 2011; Karimi et al., 2014; Keim et al., 2014; Schmidt et al., 2014; Yuryur & Sarikaya, 2012). The purpose of the needs assessment was to examine the relationship between role stressors—role conflict, role overload, and role ambiguity—in IDTs and the quality of the online course design process, with the objective of enhancing the design process and thereby improving online course quality. The needs assessment may be beneficial to instructional designers, faculty, and other staff involved in the online course design and development process by bringing

clarification to the roles of IDT members. Members of IDTs from institutions of higher education served as participants for the study. Participants provided demographic information and completed an online questionnaire that measured role conflict, role overload, role ambiguity, and their overall perceptions of the quality of the online course design process. Data were analyzed using SPSS.

Research Question

The research question for the needs assessment is:

RQ1: Is there a statistically significant relationship between *role stressors* in instructional design teams and the *quality of the online course design process*?

Hypothesis

The hypothesis for the needs assessment is:

H1: There is a statistically significant relationship between *role stressors* in instructional design teams and the *quality of the online course design process*.

Needs Assessment Design

A cross-sectional survey design, with the data collected at one point in time, was chosen for the needs assessment. This allowed for the rapid turnaround in data collection in an inexpensive way and the ability of "identifying attributes of a large population from a small group of individuals" (Creswell, 2003, p.154). Data were collected using a self-administered online questionnaire, which made it easily accessible to the potential respondents.

Method

Participants

The participants for the needs assessment were drawn from a convenience sample of instructional design team (IDT) members working in five types of higher education institutions

(public, four-year institutions; private, four-year institutions; public, two-year colleges; private, two-year colleges; and for-profit institutions) and who have played a key role in the online course design process within their institutions. IDT members included faculty, instructional designers, instructional technologists, project managers, executive team members, and others significantly involved in the instructional design process (such as instructional teaching specialists and other support staff). This convenience sample was easily accessible by the researcher and represented various key roles in the online course design process. The sampling design for the population was single stage, where the researcher had access to names in the population and was able to sample the participants directly (Creswell, 2003).

The online questionnaire was distributed to a sample of 95 IDT members across the United States. A total of 55 responses were received, out of which 44 (46.3%) were usable for the data analysis. Participants consisted of 12 faculty members, 11 instructional designers, 4 instructional technologists, 5 executive team members, 2 fulfilling other roles, and 10 identified as cross-functional and categorized as *multiple* for the purpose of data analysis. See Table 1 for demographic data.

Table 1

Participants' Demographic Information

Category	Percentage of Respondents
Ethnicity	
White (non-Hispanic)	65.9%
Asian	13.6%
African American	11.4%
Other	6.8%
Did not disclose	2.3%
Gender	
Female	59.1%
Male	38.6%
Did not disclose	2.3%
Age	
18–30	6.8%
31–40	31.8%
41–50	25.0%
51 and above	36.4%
Roles	
Faculty	27.3%
Instructional designer	25.0%
Instructional technologist	9.1%
Executive team member	11.4%
Other	4.5%
Multiple	22.7%
Type of Institution	
Private, four-year institution	36.4%
Public, four-year institution	31.8%
Public, two-year college	27.3%
Private, two-year college	4.5%
Education Level	
Advanced degree (Master's or Other)	93.2%
Four-year college degree (Bachelor's)	6.8%
Years of Professional Experience	
1–2 years	6.8%
2–6 years	9.1%
6 or more years	84.1%

Measures and Instrumentation

The online questionnaire included components from Rizzo et al.'s (1970) scales to measure role conflict and ambiguity, and Spector and Jex's (1998) Quantitative Workload Inventory (QWI) to measure role overload. An instrument was designed based on the Quality Matters (QM) rubric to measure the quality of the online course design process. The 30-item questionnaire included four sub-scales—role conflict, role ambiguity, role overload, and quality of the online course design process. All of the questionnaire items were measured either on a five-point, Likert-style scale based on strength of agreement (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree), or on a five-point frequency of occurrence scale (1 = less than once per month or never, 2 = once or twice per month, 3 = once or twice per week, 4 = once or twice per day, and 5 = several times per day) (see Appendix A for the survey instruments). Following the Likert scales, the questionnaire included an open-ended question: "Do you have any additional comments or recommendations that will improve the effectiveness of the online course design process?" This question was specifically designed for participants to comment on how to improve the quality of the online course design process. The questionnaire also included demographic questions, including: age, sex, ethnicity, highest level of education, years of professional experience, the type of institution at which participants worked, and participant role(s) within an instructional design team (IDT). The instrument was self-administered through an online survey platform and took approximately 10 minutes for each participant to complete.

The role conflict subscale consisted of eight items measuring the perception of resource adequacy, conflicting requests, group interdependence, and different working styles experienced by IDT members. Scores range from 8 to 40—a score of 8 representing the absence of role

conflict and a score of 40 representing maximum role conflict. The role ambiguity subscale consisted of six items measuring the level of IDT members' perceived ambiguity about their roles' authority and responsibility, their work objectives, necessary information about the job, and the expectations others have of them. Scores range from 6 to 30—a score of 6 representing the presence of maximum role ambiguity and a score of 30 representing the absence of role ambiguity. The role overload subscale consisted of five items representing the elements of quantity of work, amount of workload, and time pressure experienced by individuals. Scores range from 5 to 25—a score of 5 representing the absence of role overload and a score of 25 representing maximum role overload.

The role conflict, role ambiguity, and role overload instruments were chosen based on use in previous research studies (Idris, 2011; Tang & Chang, 2010; Trayambak, Kumar, & Jha, 2012). Ganster, Fusilier, and Mayes (1986), House, Schuler, and Levanoni (1983), and Jackson, Schwab, and Schuler (1986) have confirmed the construct validity of Rizzo et al.'s (1970) scales for measuring role conflict and role ambiguity. More recently, Moss (2015) reconfirmed the reliability and validity of the instrument: "extensive reviews of the psychometric validity of the Role Conflict and Role Ambiguity Scale concluded that the factor structure of the items is consistent with the two scales, that it has adequate concurrent and predictive validity, and good reliability" (p. 50). Spector and Jex's (1998) QWI was also demonstrated to be reliable with a Cronbach alpha of > 0.80 (Wyk, 2015).

An 11-item instrument, based on the QM rubric, was designed to measure the quality of the online course design process within IDTs. Scores range from 11 to 55—a score of 11 representing maximum negative perceptions toward the online course design process and a score of 55 representing maximum positive perceptions toward the online course design process. The

items within the questionnaire were based on the QM rubric, a designed and research-based inventory for the creation of effective online courses (Adair & Shattuck, 2015). Legon and Runyon (2007) and Swan, Matthews, Bogle, Boles, and Day (2011) found improved student outcomes in courses designed on QM principles. Dietz-Uhler, Fisher, and Han (2007) showed that courses built on QM standards result in significantly higher completion rates. Altman, Schwegler, and Bunkowski (2014), Hoffman, (2012), Legon, (2006), and Ralston-Berg and Nath (2008) further demonstrated the positive relationship between the incorporation of QM principles and student outcomes.

Procedure

Data Collection

Data collection began in April 2016 and ended in May 2016. An email invitation to participate in the study was sent to 95 individuals who were part of instructional design teams (IDTs) in higher education institutions. The email also asked potential participants to forward the invitation to other IDT members in their respective institutions who satisfied the criteria established for participation in the needs assessment. This allowed for *snowball sampling* where the "researcher makes initial contact with a small group of people who are relevant to the research topic and then uses these to establish contacts with others" (Bryman, 2015, p. 188). The email included a summary of the needs assessment and its importance, as well as a link to complete the survey through Qualtrics, an online survey platform. The Qualtrics link reiterated: the purpose of the study, procedures, risks/discomforts, and anticipated timeframe (approximately 10 minutes); that measures would be followed to maintain confidentiality; and personal right to decline participation from the study. IDT members were asked to provide informed consent through the survey platform (see Appendix B for the form). Participants who

did not provide consent were unable to access the questionnaire. All participants completed the same questionnaire and all responses to the questionnaire were anonymous.

Data Analysis

Data were compiled in an Excel spreadsheet and uploaded to SPSS (Statistical Package for Social Sciences, Version 24) for analysis. A descriptive analysis of all independent and dependent variables in the needs assessment was conducted. Assumptions testing was conducted to check for normality and to determine whether there is a monotonic relationship between the independent and dependent variable. Spearman's rho correlation coefficients were used to examine the relationship between role stressors—role conflict, role ambiguity, role overload—and quality of the online course design process. "Spearman's rho measures the strength of an increasing or decreasing relationship between variables," (Elliott & Woodward, 2007, p. 192), including paired-observation ordinal variables, and therefore is suitable for studying the proposed needs assessment research question.

Reliability tests. Cronbach's alpha coefficient (α) is a commonly used measure for determining internal consistency or reliability when using a Likert-scale survey or questionnaire (Warner, 2013). To establish the reliability of the role conflict (RC), role ambiguity (RA), role overload (RO), and quality of the online course design process (DPQ) scales, Cronbach's alphas were calculated. For the internal consistency of data, 0.65 to 0.80 (or higher) value of Cronbach's alpha is recommended (Warner, 2013). As shown in Table 2, the four scales in the questionnaire have Cronbach's alpha greater than 0.80. Further, the Cronbach's alpha coefficient for the total role stress (TRS) variable—which was created by combining RC, RA, and RO—was 0.875.

Table 2

Reliability Statistics

	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	*N* of Items
RC	0.826	0.829	8
RA	0.868	0.870	6
RO	0.884	0.885	5
TRS	0.875	0.879	19
DPQ	0.895	0.897	11

Assumptions tests.

Data screening. Data screening was performed for independent and dependent variables using box and whisker plots to identify outliers. The box and whisker plots showed one outlier for RA and DPQ. Visual inspection as well as records associated with outliers were inspected to ensure there were no entry errors in the data. Furthermore, to ensure that the two values did not alter the results significantly, data analysis was conducted with and without the outliers to compare the outcomes. Since the results remained the same, the outliers did not have a significant influence in the distribution of the variable, and therefore the outliers were included in the analysis. Further, the Spearman's correlation used to test the hypothesis is robust to outliers (Warner, 2013).

Normality tests. The assumption of normality was tested using the Shapiro-Wilk Test for normality ($n < 50$) alpha of .05. Role conflict ($p = .436$), role overload ($p = .227$), total role stress ($p = .212$), and quality of the design process ($p = .139$) were not significant, while role ambiguity ($p = .04$) was significant. Since the data violated the parametric assumption of normally distributed data (Field, 2009), a non-parametric test was needed. Further, since the data were in rank-order, they did not meet the assumptions of the parametric, Pearson's correlation

coefficient. Hence, the non-parametric, Spearman's rank-order correlation coefficient was used. Spearman's rho allows for correlations even within non-normal distribution shapes (Warner, 2013).

Assumptions for Spearman's Correlation. To use Spearman's correlation, a monotonic relationship must exist between variables. The assumption of monotonic relationships was tested using scatterplots. Lines of best fit indicate monotonic relationships; therefore, the assumption is met. See Figure 1 for scatterplots.

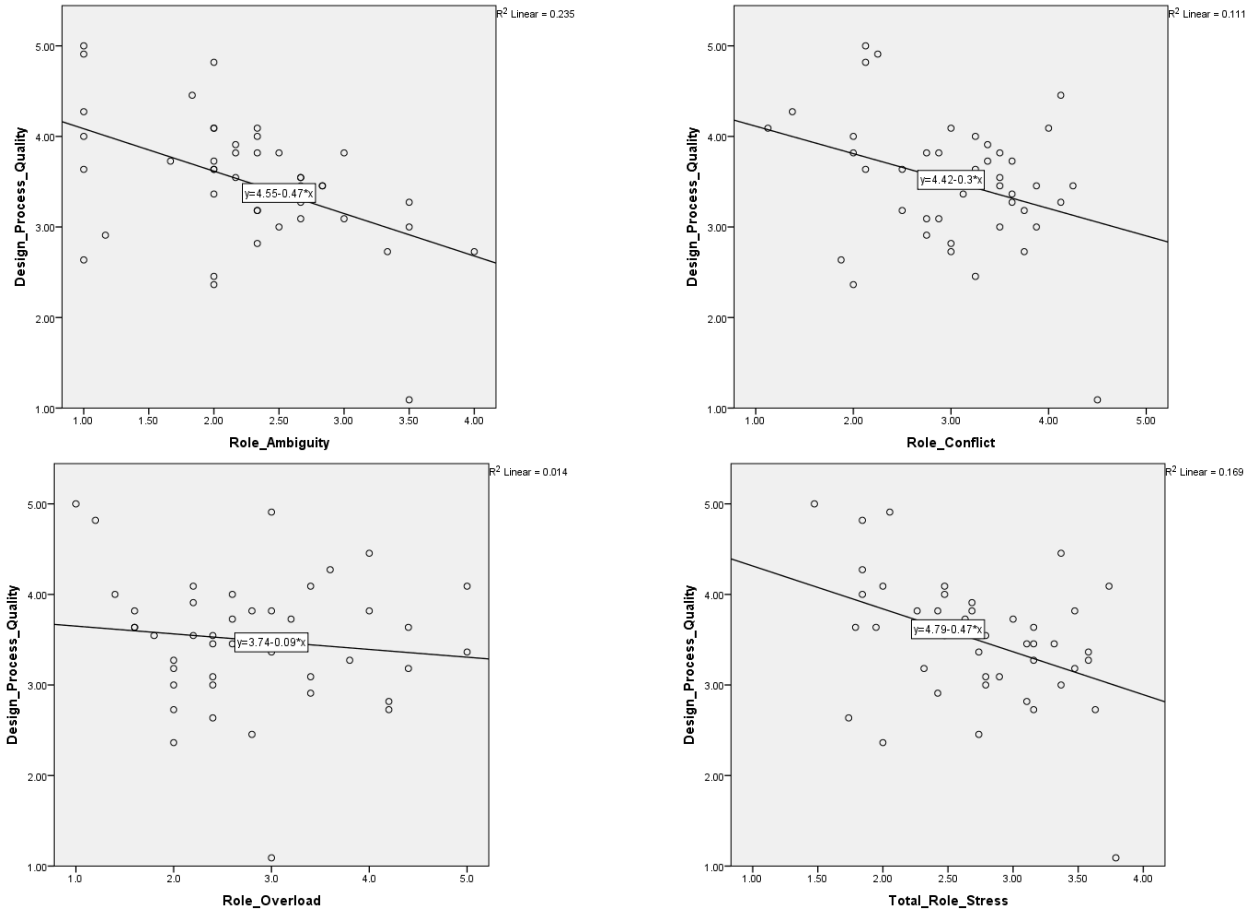

Figure 1. Scatterplot of dependent variable (DPQ) and independent variables (RC, RA, RO, and TRS), showing no extreme outliers, linearity, and normal distribution.

Results

Descriptive Statistics

The sample included 44 participants. Data were obtained for the role stressor variables—role conflict (RC), role ambiguity (RA), and role overload (RO)—and quality of the online course design process (DPQ). Following previous research (Childs & Stoeber, 2012; Coetzer & Richmond, 2009; Doraiswamy & Deshmukh, 2015; Zorlu, 2012), the score for total role stress (TRS) for each participant was obtained by adding the participant's score for the three role stressors—role conflict, role overload, role ambiguity. The composite score for each role stressor variable, including TRS, was analyzed at the interval measurement scale of 1 to 5. Mean, median, and standard deviation for each variable were calculated. Descriptive statistics were used to provide a general characterization of the sample (see Table 3).

Table 3

Descriptive Statistics

	RC	RA	RO	TRS[a]	DPQ
Mean	3.04	2.26	2.80	2.73	3.50
Median	3.06	2.33	2.60	2.74	3.55
Standard Deviation	0.79	0.74	0.99	0.62	0.71

[a] TRS for each participant was obtained by adding RC, RA and RO scores.

The mean scores of the role stress measures were categorized into the following levels:

- Low level: Mean score of 2.4 or below
- Moderate level: Mean score of between 2.5 and 3.5
- High level: Mean score of 3.6 or above

Role conflict had a mean of 3.04 with a standard deviation of 0.79, indicating that the average respondent reported experiencing moderate levels of role conflict. Similarly, role overload had a mean of 2.80 with a standard deviation of 0.99, indicating that the average respondent reported experiencing moderate levels of role overload. On the other hand, role

ambiguity had a mean of 2.26 with a standard deviation of 0.74, indicating that the average respondent reported experiencing low levels of role ambiguity. The total role stress had a mean of 2.73 with a standard deviation of 0.62, indicating that the average respondent reported experiencing moderate levels of total role stress. The quality of the online course design process (DPQ) had a mean of 3.50 with a standard deviation of 0.71, indicating that the average respondent felt slightly positive about the online course design process.

Data were analyzed to examine if participants reported performing multiple roles within IDTs. Among the 44 respondents, 10 (22.7%) reported performing more than one role within their teams. This finding is consistent with existing research literature on the roles and responsibilities of IDT members (Campbell, Schwier, & Kenny, 2009; Hokanson & Miller, 2009; Liu et al., 2002; Moskal, 2012; Tracey, Hutchinson, & Grzebyk, 2014). Participants who reported performing multiple roles indicated their primary role to be faculty, instructional designer, instructional technologist, and/or project manager. Six participants who indicated their primary role to be faculty indicated that they also assumed the roles of instructional designer, instructional technologist, and/or project manager (see Table 4). This finding aligns with the existing literature on the complex roles faculty play in online course design (Koehler & Mishra, 2005; Reilly et al., 2012; Strawser, Buckner, & Kaufmann, 2015).

Table 4

Summary of Roles Assumed by Participants

Roles (Single and Multiple)	Number of Roles	Number of Respondents	Percentage of Respondents	
Single Roles				
Faculty	1	12	27.3	Single Role
Instructional Designer	1	11	25.0	= 34
Instructional Technologist	1	4	9.1	(77.3%)
Executive Team Member	1	5	11.4	Respondents
Other	1	2	4.5	

Roles (Single and Multiple)	Number of Roles	Number of Respondents	Percentage of Respondents	
Multiple Roles				
Faculty, Instructional Designer	2	4		Multiple
Faculty, Instructional Designer, Instructional Technologist	3	1		Roles = 10 (22.7%)
Instructional Designer, Instructional Technologist	2	2		Respondents
Instructional Technologist, Project Manager	2	1		
Instructional Designer, Project Manager	2	1		
Faculty, Project Manager	2	1		
	Total	44		

Research Question

Is there a statistically significant relationship between *role stressors* in instructional design teams and the *quality of the online course design process*?

Hypothesis

There is a statistically significant relationship between *role stressors* in instructional design teams and the *quality of the online course design process*.

Results of Hypothesis

A Spearman correlation was used to test the hypothesis that there is a statistically significant relationship between total role stress (TRS), as measured by the total of the three role stress subscales (RC, RA, RO), and the quality of the online course design process (DPQ). The hypothesized relationship was supported although the relationship was weak (r = -0.363), significant at the 0.05 level (see Table 5). Thus, the relationship specified in H_1 is supported. Among the three role stressor variables measured, role conflict (r = -0.249; p = .118) and role overload (r = -0.082; p = .595) did not show a statistically significant relationship with the quality of the online course design process. However, the results showed a moderately negative

relationship between role ambiguity and the quality of the online course design process (r = -0.459; p = .002). See Table 5 for the results of the Spearman correlation.

Table 5

Correlation Matrix among Role Stressors and the Quality of the Online Course Design Process

Variables	Online Course Design Process	
	r_s	p
Role Conflict	-0.249	0.118
Role Ambiguity	-0.459**	0.002
Role Overload	-0.082	0.595
Total Role Stress	-0.363*	0.015

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

The open-ended question asked: "Do you have any additional comments or recommendations that will improve the effectiveness of the online course design process?" Even though the open-ended question did not directly ask participants for their opinions about perceived role stress, the responses provided valuable insights into its potential influence on the online course design process and the need for clarity and consistency around instructional design processes.

Role ambiguity was considered a frequent stressor affecting online course quality, as evidenced in the responses. The lack of clear and consistent expectations while working with various stakeholders was perceived to have a negative impact on the online course development process. This was expressed in the following statements: "Lack of a policy as well as lack of buy-in from key senior faculty administrators greatly diminishes the effectiveness of the online course design process"; "I have to work with various groups whose aims are different than simply quality instruction, and my institution as a whole has no clue about creating work flows and processes." Workload was also considered to be a stressor. Participants remarked that the lack of meaningful institutional support diminished the effectiveness of IDTs: "Let me just say

that my situation is unique. I am essentially the instructional design shop. I have a manager, but I do everything"; "Creating a realistic timeline involves administrative buy-in so that an appropriate budget (time and costs) [is allocated] for each course." The breadth of responses to the open-ended question suggest that a lack of clarity around processes and policies (role ambiguity), inadequate time and resources (role overload), and incompatible role demands (role conflict) have the potential to influence online course development.

In addition, consistent with existing literature, some of the responses to the open-ended question revealed the complexities of the instructional design process and the interrelationships between various individual, team, and institutional factors (Conceicao, 2006; Gerlich, 2005; Koehler & Mishra, 2005; Strawser, Buckner, & Kaufmann, 2015). For example, two participants highlighted the importance of professional development to the successful design and development of online courses: "I believe that the training for individuals should be a multi-year proposition, with specific incremental goals each year. The training should increase in complexity with deliverables of the actual courses to be implemented"; "Faculty preparation for online course design, such as learning how to write measurable objectives and training in the learning management system would be helpful in the course design process." Furthermore, the widespread concern regarding the overall quality of online learning (Allen & Seaman, 2016; Greenberg, 2010; Meyer, 2012) was echoed in one participant's remark: "The quality of our online courses is abysmal. Granted, our on-campus courses aren't so hot either." Other responses emphasized the importance of related factors such as improving retention and student performance, complexities surrounding vendor partnerships, and the importance of effective, successful, and engaging course facilitation by the instructor.

Discussion

The needs assessment examined the relationship between role stressors and quality of the online course design process. The hypothesized relationship between role stress and the perceived quality of the online course design process was supported, although the relationship was weak (see Table 5). The small sample size of 44 participants limits the generalizability of these findings. However, the results are consistent with the theoretical framework of role theory, which suggests that unclear expectations, constrained resources, and incompatibility among different roles can have negative implications on performance and productivity (Kahn & Katz, 1966, 1978).

While role conflict and role overload were both reported by the participants, only role ambiguity was found to have a statistically significant relationship with the perceived quality of the online course design process. Role ambiguity suggests a lack of clear role expectations, which are required for the adequate job performance (Katz & Kahn, 1978). The moderate, negative relationship between role ambiguity and the perceived quality of the online course design process suggests that a lack of clear expectations for each member of an instructional design team (IDT) can influence how individuals perceive the overall quality and effectiveness of the online course development process. The results also highlighted the relevance of the role stress construct generally among IDTs, especially considering an increasing level of complexity and diversity in their roles and responsibilities (Pan & Thompson, 2009; Rapanta et al., 2013).

Extant research reveals the complexity of the instructional design process in online courses, and the multifaceted and diverse roles assumed by individuals within IDTs (Macpherson & Smith, 1998; Pan & Thompson, 2009; Pan et al., 2003; Rapanta et al., 2013; Stewart & Waight, 2008; Yusoff & Salim, 2012). In addition, research also highlights the essential roles of

instructional designers, instructional technologists, and faculty, defining the factors, skills, and traits that contribute to successful job performance (Dooley et al., 2007; Hokanson & Miller, 2009; Pan & Thompson, 2009; Ritzhaupt & Kumar, 2015).

The needs assessment adds to the literature, revealing the importance of helping IDTs recognize the ways in which role stressors, especially role ambiguity, can exist in their teams and providing them with strategies and tools to alleviate or minimize the stressors. Awareness of roles stressors and the ability to mitigate them may lead to an improvement in the online course design process, and therefore, the quality of the courses produced. Leaders and managers of IDTs should be aware of their role in establishing and maintaining a positive and productive environment for their team members. Interventions in the form of stress management and role clarification training have the potential to reduce role stressors among IDTs and establish a positive and productive environment for the team members (Srivastav, 2011; Sims, Klein, & Salas, 2006, Rao & Vijayalakshmi, 2000).

Limitations

There were several limitations to the needs assessment. First, since the sample size was relatively small (n = 44), generalization of the findings should be made with caution. Second, while the survey results provided a general understanding of the potential influence of role stressors, quantitative data alone did not provide in-depth information on the experiences and potential manifestations of role stressors in instructional design teams. So, while it may be useful to understand that there is a relationship between role stress and the quality of the online course design process, it may be more helpful to understand how to mitigate role stress or shape it in such a way that leads to improved processes.

Conclusion

While research on role stressors within instructional design teams is limited, the findings of the needs assessment are consistent with existing literature on the complex roles of instructional design team members (Macpherson & Smith, 1998; Pan & Thompson, 2009; Pan et al., 2003; Rapanta et al., 2013; Stewart & Waight, 2008; Yusoff & Salim, 2012). Briggs (2005), in a study of business school academics, found that role overload, role ambiguity, and role balance inform the quality of online courses. Likewise, in an examination of instructor and student roles in online courses, Bork and Rucks-Ahidiana (2013) found that role ambiguity has the potential to cause frustration, confusion, and tension, leading to misaligned expectations among online instructors and students. Given that IDT members may assume multiple roles and that those roles are often ill-defined, there is potential for role stressors to influence the online course development process and, ultimately, the quality of courses.

Given the findings in the existing literature and the needs assessment, the next chapter explores in more detail the influence of role stressors. It also examines advantages of role clarification techniques to minimize role stress, especially role ambiguity among instructional design teams. Further, it offers an evidence-based approach for defining and clarifying expectations in IDTs to decrease role ambiguity and improve the online course design process.

Chapter 3: Intervention Literature Review

Background

With role theory as a guiding framework, the needs assessment examined the relationship between role stressors—role conflict, role overload, and role ambiguity—in instructional design teams (IDTs) and the quality of the online course design process. A weak correlation between role stressors and the quality of the online course design process was identified. Among the three role stressor variables measured, role ambiguity was found to have a moderate, significant relationship with the perceived quality of the online course design process. Furthermore, participants' responses to an open-ended question related to challenges of the instructional design process revealed the potential for role ambiguity to negatively impact the online course design process.

The results of the needs assessment suggest the need to examine further the sources and effects of role stress in IDTs. Existing research highlights the negative effects of role stressors, including uncertainty in the workplace (Schmidt et al., 2014), job insecurity (Keim et al., 2014), and emotional exhaustion and depersonalization (Yuryur & Sarikaya, 2012). Identifying ways to help IDTs recognize how role stressors, especially role ambiguity, can exist in their teams and providing them with strategies and tools to alleviate or minimize the stressors may lead to an improvement in the online course design process and the quality of the courses produced by those teams. In this way, role clarification interventions have the potential to reduce role ambiguity (Rao & Vijayalakshmi, 2000; Sims, Klein, & Salas, 2006; Srivastav, 2011) among IDTs and establish a positive and productive environment for team members.

The Influence of Role Stressors

The needs assessment focused on the relationship between three role stressor variables—role conflict, role overload, and role ambiguity—and the quality of the online course design process. While role conflict and role overload did not show a statistically significant relationship with the quality of the online course design process, role ambiguity showed a moderately negative relationship with the quality of the online course design process. In Pareek's (1983) Organizational Role Stress (ORS) scale, role ambiguity (RA) is identified as a role stressor that arises due to lack of clarity in role expectations. Even though studies show that the other two variables—role conflict and role overload—may have a negative impact on job performance and satisfaction (Karimi et al., 2014; Idris, 2011; Schmidt, 2014), existing literature also sheds light on the potential of role conflict and role overload to have positive affects (Lepine, Podsakoff, & Lepine, 2005).

In a meta-analytic study of work stressors' relationships with strains, motivation, and performance, Lepine, Podsakoff, and Lepine (2005) distinguished between *challenge* stressors and *hindrance* stressors. They categorized challenge stressors to include measures of job/role demands, pressure, time urgency, and workload. Hindrance stressors included measures of constraints, hassles, resource inadequacy, role ambiguity, role and interpersonal conflict, role interference, role strain, supervisor-related stress, and organizational politics. The study showed that hindrance stressors had a negative impact on performance while challenge stressors had a positive impact on performance. The researchers noted that high workload had a positive impact, given that it was often addressed through an active, problem-solving method of coping—such as through increased effort. On the other hand, hindrance stressors, such as role ambiguity, were not addressed by increased effort, rather through withdrawal and cognitive distancing.

Other studies also highlighted the negative impact of role ambiguity and some of the potential positive impacts of role conflict and role overload on' job performance and satisfaction. Ackfeldt and Malhotra (2013) examined the effect that empowerment and professional development has on role-stress commitment relationships and the impact of role stress on organizational commitment. While role ambiguity was found to negatively influence continuance commitment, role conflict was found to positively influence continuation commitment. In a similar study, Tang and Chang (2010) examined how role ambiguity and role conflict (through self-efficacy and job satisfaction) impacted creativity, both directly and indirectly. The results indicated that perceived role ambiguity had a negative, direct impact on creativity. On the other hand, perception of role conflict was found to have a positive and direct impact on their creativity. Using role theory as a framework for a quantitative study of 80 faculty members from a university in Pakistan, Abbas, Roger, and Asadullah (2012) examined the contribution of various role stressors to stress and burnout. The results of the study indicated that role ambiguity significantly affected stress and burnout among faculty.

Overall, the findings on the impact of role overload and role conflict on job performance and satisfaction are mixed and call for further investigation. However, existing research consistently highlights the negative effects of role ambiguity, including uncertainty in the workplace (Schmidt et al., 2014), job insecurity (Keim et al., 2014), and emotional exhaustion and depersonalization (Yuryur & Sarikaya, 2012). Therefore, a role analysis intervention has the potential to promote role clarification to decrease role ambiguity in instructional design teams.

Role Clarification Literature

Existing literature and the results of the needs assessment confirm the need to address role ambiguity in instructional design teams (IDTs). Identifying ways to help IDTs recognize

how role ambiguity can exist in their teams and providing them with strategies and tools to alleviate or minimize the ambiguity could lead to an improvement in the online course design process, and therefore, the quality of the courses produced by these teams. Interventions in the form of role clarification have the potential to reduce role ambiguity (Rao & Vijayalakshmi, 2000; Sims, Klein, & Salas, 2006; Srivastav, 2011) among IDTs and establish a positive and productive environment for the team members.

Role Clarification

Role clarity has been studied from different angles, including job performance, job satisfaction, and turnover. Research has revealed several positive outcomes of role clarification. Samie, Riahi, and Tabibi (2015) conducted a cross-sectional descriptive-analytic study to examine the relationship between role clarity and the efficiency. A total of 133 participants from the Management and Resources Development Department of the Ministry of Health and Medical Education of Iran completed two questionnaires on role clarity and efficiency. The results indicated a significant positive relationship between role clarity and job performance alignment with organizational goals, work pace, the use of equipment and facilities, training, being committed to the workplace regulations, self-assessment, and efficiency.

Based on role theory and the path-goal theory of leadership, Hassan (2013) undertook a quantitative study of 2,136 participants working in 65 geographically dispersed offices of a government agency to measure the impact of role clarification on the work satisfaction and turnover rates in workgroups. Data were collected during two time periods from personnel records and a survey regarding perceptions of managerial practices and their work climate. The results of the study indicated that role clarification, including clarifying work objectives and

performance expectations improved participants' perceived role clarity, and, in turn, increased work satisfaction and decreased turnover rates.

Using role theory and leader-member exchange (LMX) theory as frameworks, Lawrence and Kacmar (2012) conducted a quantitative study of 418 employees of a water management district to investigate the mediating role of job involvement and role conflict on leader-member exchange and stress. Participants completed anonymous, written surveys that measured LMX, job involvement, the extent of role conflict, and stress. As predicted in the hypotheses, the results showed that LMX was negatively related to role conflict and positively related to job involvement. Similarly, drawing on role theory and the organizational role stress model, Rajarajeswari (2010) conducted a quantitative study to analyze stress among faculty in aided and self-financing colleges. The results of the study showed that faculty working in the self-financing institutions reported experiencing more stress than their counterparts working in government institutions. Rajarajeswari recommended managerial interventions to control the workload and clearly evaluate the duties and responsibilities assigned to faculty.

Role Clarification Techniques

Role clarification techniques have been implemented in several occupational settings to reduce role stressors and "address the void left unfulfilled by classical job descriptions" (Srivastav, 2011, p. 103). Role clarification is an intervention in which "the supervisor states his or her expectations to the direct report subordinate, and together the two parties discuss means by which the report's role obligations can be managed effectively" (Schaubroeck, Ganster, Sime, & Ditman, 1993, p. 4). With the help of a trained process facilitator, the supervisor and the subordinate can develop a mutual understanding regarding the purpose of the subordinate's

position, the various responsibilities that are prescribed, and the specific elements that may result in effective job performance.

Responsibility charting, an early intervention strategy proposed to counter role ambiguity, is a graphical tool used for recording and analyzing organizational structures, departmental relationships, environmental assessments, strategic alternatives, executive job content, functional responsibilities and authority, and decision-making processes (Korey, 1988). Expanding on Korey's (1988) recommendation, Schaubroeck et al. (1993) proposed responsibility charting to promote role clarification. They described a responsibility chart as a "diagram of roles held by members of a top management team within the 'critical result areas' (CRAs) of an organization or autonomous business unit" (Schaubroeck et al., 1993, p. 5). After the identification and clarification of the list of CRAs, responsibility charting involves conducting an individual survey of perceived roles within the CRAs, which is then followed by a group discussion to achieve agreement on each manager's role in each CRA (Schaubroeck et al., 1993). To test responsibility charting as an intervention to clarify individual roles, an experimental study was conducted on the business service division of a major university over a period of two years. The study found that responsibility charting reduced both role ambiguity and dissatisfaction. It should be noted, however, that further research is needed to understand the impact of responsibility charting on reducing role stress (Schaubroeck et al., 1993). Furthermore, responsibility charting places emphasis on supervisory role clarification and limits "reciprocal exchanges between peers to achieve coordination" (Schaubroeck et al., 1993, p. 22).

Three techniques have been developed for role clarification: job expectation technique, role negotiation technique, and role analysis technique (Srivastav, 2011). Huse (1980) developed the job expectation technique (JET) as an intervention for the distribution of authority and roles.

JET is a process in which "members take turns listing their perceived job duties and responsibilities; others comment until a consensus job definition is reached, and so on until the whole team has developed an understanding and agreement of each member's prescribed and discretionary role space" (Lundberg, 1980, p. 260). JET can be particularly useful when new members are introduced to a team (Srivastav, 2011).

Another technique developed for role clarification is the role negotiation method (Harrison, 1972), which is based on the assumption that most individuals prefer a fair, negotiated settlement rather than a state of unsuccessful conflict. The role negotiation technique involves each party making a list of their role expectations of each other and then engaging in an interpersonal negotiation session in the presence of a facilitator. They exchange the lists and engage in a negotiation discussion with each other ("I will, if you will…") until both sides agree on changes in role performance. All parties taking part in the negotiation then receive a master list of agreements. Role negotiation can be particularly useful when role conflicts are pronounced (Srivastav, 2011).

The role analysis technique (RAT) was developed to define and clarify role expectations (Dayal and Thomas, 1968). In RAT, the person occupying a focal role initiates an analysis of that role and its rationale and responsibilities. Specific duties, behaviors, and responsibilities are added or subtracted until the role incumbent and the group involved in the role analysis are satisfied with the role description. A role profile is then developed, which is followed by other roles analyzed and clarified. RAT can "enhance team task functioning, while also alleviating the stress associated with role ambiguity" (Buch & Aldridge, 1990, p. 36). RAT can be particularly suitable as an intervention to reduce role ambiguity (Srivastav, 2011).

Building on Dayal and Thomas's (1968) role analysis technique, Srivastav (2006) proposed that the analysis and design of roles should take place based on processes served by the role. Specific to role clarification interventions for addressing role stressors, Srivastav (2006) proposed that the analysis and design of roles should take place based on business processes served by the role. The complex and often dynamic nature of the instructional design process calls for an intervention that not only targets clarifying roles of those involved but does so within the context of existing processes. Srivastav (2011) highlighted the significance of designing role clarification interventions within existing business processes:

> An organizational role may contribute to more than one business process. Performance of an organization can, therefore, be improved by enhancing the format of its business processes and their alignment with each other. This in turn will lead to reinvigorating effectiveness of the related roles and technologies employed and their alignment with each other. Maximization of organizational performance, in fact needs comprehensive organizational connection among all the organizational components . . . to realign roles with organizational structure and policies so activities and tasks can effectively be carried out by the role occupants in their new roles. Processes have to be coordinated with organizational systems and procedures must be linked with processes ensuring the organizational system is aligned with organizational structure and policies. In short, processes must be integrated with roles, and procedures must be aligned with activities and tasks. (p. 4)

To clarify and align roles and improve the effectiveness of roles based on processes, Srivastav (2006) proposed *process-based role analysis and design* (PROBRAD) as an organizational development intervention. PROBRAD involves a detailed analysis of the focal

role and its systematic design/redesign to maximize role effectiveness, the effectiveness of related business processes, and alignment with organizational components (Srivastav, 2010). Implementing PROBRAD as a role clarification exercise involves five major steps, including: (1) organizational study, (2) role-set identification, (3) role-set member training, (4) tentative role element design, and (5) final role design. After completing these steps, teams record the details of the role set in the PROBRAD format developed by Srivastav (2011). Each of the five steps involves several sub-steps, and some intermediate actions should be completed between the steps. While the implementation of PROBRAD requires significant planning, preparation, and commitment, it has the potential to help IDTs: enhance the effectiveness of roles and the related instructional design processes; and identify the weaknesses of structures, policies, systems, processes, and procedures that could negatively affect role effectiveness (Srivastav, 2010).

Role Analysis Intervention

The intervention strategies in existing literature include responsibility charting (Schaubroeck et al., 1993), job expectation clarification (Huse, 1980), role negotiation (Harrison, 1972), role analysis (Dayal & Thomas, 1968), process-based role analysis and design (Srivastav 2006), participative decision-making (Carbonell & Rodriguez, 2013; Newton & Jimmieson, 2008), and leader-member exchange (Kim & Barak, 2015; Breevart et al., 2015). While research highlights the potential for role clarification to reduce role stressors in general, role analysis is particularly relevant for clarifying role expectations and minimizing role ambiguity (Srivastav, 2010).

The two role analysis interventions that focus specifically on clarifying role expectations and improving role performance are Dayal and Thomas's (1968) role analysis technique (RAT) and Srivastav's (2006) process-based role analysis and design (PROBRAD). While both

interventions involve analyzing roles with the goal of establishing role clarification, there are key differences. PROBRAD involves the analysis of a critical role (the focal role) and its systematic design/redesign to maximize role effectiveness and related business processes. RAT involves clarification of role expectations and obligations to minimize role ambiguity and mismatched role expectations to improve team effectiveness. While PROBRAD focuses on the design and definition of the focal role, RAT emphasizes clarifying team members' role expectations and requirements. The broad focus of PROBRAD allows for its application at the organizational level and alignment with organizational goals, mission, and vision. On the other hand, the narrower and more specific focus of RAT makes it suitable for implementation at a team and/or project level and exploration of potential overlap, misalignment, and/or ambiguity across team roles.

In light of the results of the needs assessment and existing literature, a role analysis exercise based on RAT has the potential to decrease role ambiguity in instructional design teams (IDTs). RAT is a step-by-step process for defining and clarifying *who* is responsible for *what*. RAT is based on the premise that when members of a team do not know what is expected of them and/or have different expectations about the roles and responsibilities of team members, it can result in role ambiguity (Dayal & Thomas, 1968). Schermerhorn, Osborn, Uhl-Bien, and Hunt (2012) described RAT as:

> The Role Analysis Technique, or RAT, is a method for improving the effectiveness of a team or group. RAT helps to clarify role expectations, and all organization members have responsibilities that translate to expectations. Determination of role requirements, by consensus—involving all concerned—will ultimately result in more effective and mutually satisfactory behavior. Participation and collaboration in the definition and

analysis of roles by group members should result in clarification regarding who is to do what as well as increase the level of commitment to the decisions made. (p. 333)

The five key steps in RAT involve the following: 1) each team member outlines his or her role as he or she perceives it; 2) each team member outlines his or her perceived expectations of each of his or her fellow team members; 3) the team discusses each individual's roles, focusing on where expectations match and differ; 4) the team reaches consensus regarding the roles and responsibilities of each team member; and 5) a role profile is created for each role analyzed. Carter et al. (2005) developed a visual representation to conceptualize the processes underlying a role analysis exercise (see Figure 2).

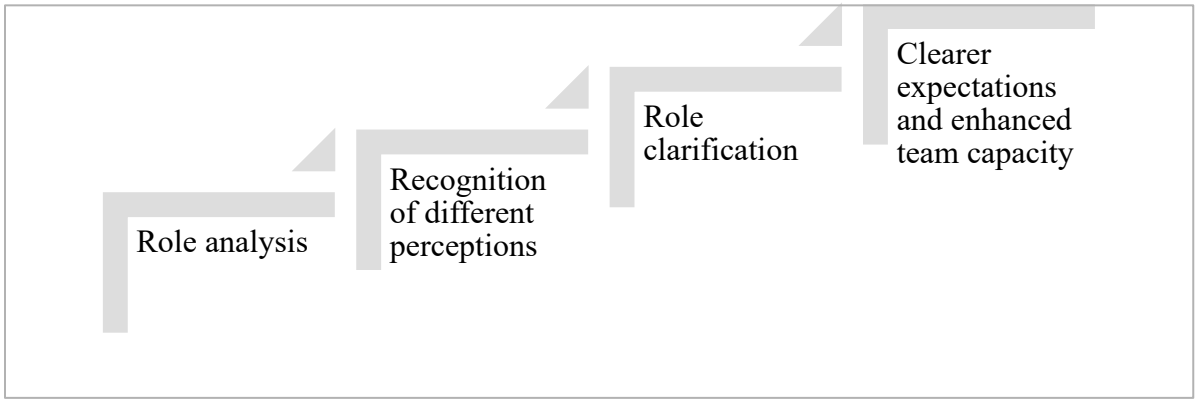

Figure 2. Pathways to successful team relationships. Adapted from "Roles and Responsibilities of Team Members," *Collaboration: A Training Curriculum to Enhance the Effectiveness of Criminal Justice Teams* (Carter et al., 2005, p. 130).

The implementation of a role analysis exercise may result in role clarification that reduces and/or alleviates role ambiguity in the IDT and may lead to an improvement in the online course design process, and therefore, the quality of the courses produced by these teams. However, the empirical research on the implications of RAT in teams is scant and none is dedicated to IDTs. However, existing research highlights the potential benefits of RAT in improving organizational and team performance (Buch & Aldridge, 1990; Singh, 1997;

Srivastav, 2010). Buch and Aldridge (1991) recommended RAT as an organization development (OD) tool for managing the corporate downsizing process and minimizing its negative consequences. They noted that following RAT can reduce conflict between and within departments and contribute to reducing role ambiguity that can arise after downsizing and restructuring.

While the primary function of RAT is to assist groups in clarifying role expectations and responsibilities in organizations, it has been adapted for use as an "experiential learning activity in undergraduate and graduate business school courses" to clarify role expectations for the instructor and students (Lyons, 1993). RAT was implemented as an icebreaker activity during the initial class session and allowed the instructor to establish the following: "(a) one may expect to be actively involved in the course; (b) one's ideas and contributions have value; and (c) the course represents joint expectations (exchanges) among students and the instructor" (p. 389). Lyons (1999) implemented RAT with the staff of a large, residential retirement/health care facility in the mid-Atlantic region. Since the staff reported experiencing problems with responsibilities and scheduling, RAT was used to create "definitions, interpretations, and understandings regarding role, functions, task sequencing, and the like" (p. 7). Even though the staff displayed some initial resistance and reported that the technique was time-consuming, they recognized that it was helpful in clarifying role responsibilities.

Meier (2001) conducted a descriptive research study of 35 Northern California school district superintendents to examine issues that create conflict, the types of conflicts that occur, and strategies used by superintendents to manage conflicts. The study utilized a semi-structured interview instrument to guide the telephone interviews with the superintendents and found that

while communication and feedback were primarily used for managing conflicts, role analysis technique was the second most used strategy.

More recently, Beech, MacIntosh, and MacLean (2010) examined how "researchers and practitioners work together in order to develop solutions to problems in the world of practice . . . [and the reasons why] dialogues between academics and practitioners appear to remain problematic" (p. 1342). To uncover how academics and practitioners perceived and acted toward each other, the researchers adapted Dayal and Thomas's (1968) role analysis technique and conducted semi-structured interviews with 10 academics and 10 practitioners. "Each of the 20 interviewees was asked what they thought the other group (practitioners or academics) *actually* did and what they *should* be doing. Interviewees were then asked the same questions in relation to themselves. In this way, mismatches of expectations and perceived action were discerned" (Beech et al., p. 1346). The role analysis uncovered the underlying assumptions that academics and practitioners had concerning each other and highlighted mismatched expectations.

While existing research on the effectiveness of RAT is limited and RAT has not been studied specifically within the context of higher education, it does open the opportunity to explore a key gap in existing literature—that is, implementing a role analysis intervention that focuses on promoting role clarification to reduce and/or alleviate role ambiguity. Furthermore, the nature and effects of role stress have not been extensively studied within higher education generally and instructional design team contexts more specifically (Dyer & Dyer, 2013; Harvey & Drolet, 2004; Lyons, 1993; Rahim, 2010).

Leadership Implications of Role Clarification Intervention

The implementation of RAT as a role clarification intervention has leadership implications at organizational, team, and individual levels (Buch & Aldridge, 1990, 1991;

Schermerhorn et al., 2012; Srivastav, 2010). Considering that RAT involves defining and analyzing roles related to online course development, it has the potential to bring clarity to instructional design processes. Since RAT involves teams engaging in an exercise that requires clarifying roles and responsibilities, it has the potential to motivate and enable instructional design teams (IDTs) to function more effectively and at the same time reduce the stress attributed to role ambiguity (Carter et al., 2005). Furthermore, the role clarification that RAT affords may bring clarity to the specific roles of IDT members in contributing to instructional design processes, and the overall quality of online courses.

The five critical components of the theory of action for leading school turnaround include awareness of the problems, understanding why the problems exist, planning to provide focus and direction to guide action, competence to lead staff to address the problems, and commitment to lead staff members in addressing the problems (Duke, 2014). These components represent a framework for implementing an intervention to promote role clarification and decrease role ambiguity in IDTs. Leaders who manage IDTs should: (a) be aware of the existence of and levels of role stressors in IDTs; (b) understand the impact of role stressors on the online course design process; (c) prepare and plan for minimizing the role stressors; (d) exhibit competence in leading a process change; and (e) commit to achieving the group vision established through a collaborative process.

For role clarification interventions such as RAT to be successfully implemented, managers and members of IDTs should recognize role ambiguity as a potential stressor and its potential negative impact on the course design process. For such awareness, a clear vision for the IDT and the outcomes at the individual, group, and organizational levels is crucial (O'Connell, Hickerson, & Pillutia, 2011). Individual leader visioning and collaborative group visioning are

essential to clearly establish goals and ensuring team effectiveness (O'Connell, Hickerson, & Pillutia, 2011). Once the vision of an IDT is clearly established and assimilated, IDTs can connect vision to action. A clear vision can also help teams see the factors (e.g., role stressors) that could be potential hindrances to achieving the established vision. The role clarity that RAT affords may "result in a greater capacity to achieve what the team wants to achieve" (Carter et al., 2005, p. 130). RAT may allow for the IDT to be better equipped to attend to critical details, allow for greater accountability within the team, minimize chances for duplication of effort, and reduce confusion and frustration related to roles and responsibilities (Carter et al., 2005).

An intervention involving IDTs engaging in the role analysis exercise may result in decreased levels of role stress and role ambiguity. However, the potential limitations of RAT as an intervention to address role ambiguity should be taken into consideration. Existing literature on how RAT promotes role clarification is limited and predominantly outside higher education contexts. Therefore, cross-context transferability could be a challenge. The nuances and subtleties specific to IDTs and higher education may cause difficulty in addressing and/or alleviating role ambiguity. Further empirical studies are needed to examine the effect of RAT in minimizing role stress, specifically role ambiguity, both within and outside of instructional design and higher education contexts.

One key assumption of the intervention is that higher education institutions recognize and perceive role stress as a significant factor influencing the online course design process and, therefore, the quality of the courses produced by IDTs. If institutions do not recognize role stress as a significant problem or do not want to discuss it, the intervention may not be of interest or relevant. The intervention also assumes that role stressors negatively contribute to the online course design process and proposes strategies to reduce them. However, there is some evidence

that certain elements of role stress can yield positive results (Tang & Chang, 2010). Another key assumption is that data collected during the role analysis exercise will reflect the actual conditions related to the existence of role stressors in IDTs. Since role stress can be a sensitive topic, participants may not accurately report actual conditions, especially in the presence of a leader or a manager. Furthermore, RAT involves the instructional design *team* engaging in a role analysis. A key assumption is that institutions follow a team-based approach to online course design. Therefore, deliberate thought and consideration should be given to how RAT can be integrated as part of the IDT's existing processes (Srivastav, 2006).

Conclusion

While assumptions are made in the intervention design regarding how IDTs function, the role analysis intervention may reduce role stressors among IDTs and establish a positive and productive environment for team members. The role analysis exercise may create opportunities for IDTs to recognize role stress as a significant issue that has the potential to negatively impact the online course design process. In addition, the intervention may create opportunities for teams to engage in active collaboration and exchange of information related to their roles and associated instructional design processes. The team-based nature of the intervention, where decisions will be made collaboratively after defining and analyzing roles, may result in effective leader-member exchanges (LMX) (House & Aditya, 1997) as well as participative decision-making (PDM) (Beehr, 1996; Karasek, 1979; Vroom & Jago, 1988).

Chapter 4: Intervention Design

Overview

This chapter describes the intervention to decrease role ambiguity and promote role clarification in instructional design teams (IDTs). The intervention involved members of IDTs in higher education institutions engaging in a role analysis exercise based on Dayal and Thomas's (1968) role analysis technique (RAT). RAT is a step-by-step process for defining and clarifying *who* is responsible for *what*. RAT is based on the premise that when team members do not know what is expected of them and/or have different expectations about roles and responsibilities, they experience role ambiguity and performance becomes suboptimal. The five essential steps in RAT are (a) team members outline their respective roles as they perceive them; (b) team members outline their perceived expectations of the other team members; (c) the team discusses each individual's roles, focusing on where expectations match and differ; (d) the team reaches consensus on the roles and responsibilities of each team member; and (e) a role profile is created for each role analyzed.

Intervention Goal and Rationale

The intervention was designed to decrease role ambiguity and promote role clarification among members of instructional design teams (IDTs). Role clarification has been shown to have the potential to reduce role stressors, particularly role ambiguity, by creating an opportunity for team members to discuss expectations regarding their own and others' roles and responsibilities within team processes (Rao and Vijayalakshmi, 2000; Sims et al., 2006; Srivastav, 2011, 2012). In light of the results of the needs assessment and existing literature, a role analysis exercise based on Dayal and Thomas's (1968) RAT was implemented to decrease role ambiguity in IDTs and help achieve role clarity in existing instructional design processes. In accordance with the

Dayal and Thomas framework, the intervention was designed to allow IDTs to (a) analyze key roles within existing online course development processes, (b) identify limited perceptions or misperceptions around roles that could affect role effectiveness, and (c) develop clarity around specific roles of IDT members in contributing to online course development processes and the overall quality of online courses.

Limited research exists on the effectiveness of RAT in higher education, and no research exists on its application to IDTs. Furthermore, the nature and effects of role stress have been only minimally studied in higher education generally and IDTs more specifically (Dyer & Dyer, 2013; Harvey & Drolet, 2004; Lyons, 1993; Rahim, 2010). Therefore, this study aimed to fill a significant gap in the literature by researching whether the implementation of a role analysis intervention that focuses on promoting role clarification decreases role ambiguity in IDTs in higher education.

Research Questions

The intervention tested the hypothesis that IDTs that participate in a role analysis exercise based on Dayal and Thomas's (1968) role analysis technique (RAT) will experience decreased role ambiguity and increased role clarity around existing instructional design processes. Comparisons between pre-intervention and post-intervention results were performed to assess the efficacy of the intervention. The following intervention research questions were developed:

RQ1: To what extent did the role analysis exercise result in a decrease in role ambiguity among instructional design team (IDT) members, as measured by the Role Ambiguity (RA) subscale in Pareek's (1983) Organizational Role Stress (ORS) scale?

RQ2: What were instructional design team members' perceptions of the value of a role analysis exercise and its potential to decrease role ambiguity?

RQ3: To what extent were all elements of the role analysis exercise based on Dayal and Thomas's (1968) role analysis technique (RAT) implemented as planned?

Intervention Design

Consistent with a convergent mixed methods approach (Creswell & Plano Clark, 2011), the intervention captured both qualitative and quantitative data. The convergent parallel design was used to "implement the qualitative and qualitative strands during the same phase of the research process, prioritize the methods equally, and keep the strands independent during analysis and then mix the results during the overall interpretation" (Creswell & Plano Clark, 2011, p. 97). This design allowed for a complete and holistic understanding of role ambiguity in IDTs and the opportunity to validate and corroborate the quantitative data obtained from the role ambiguity scale.

The research design logic model (Appendix C) illustrates the flow of participant inputs, activity and participation outputs, and the anticipated short-, medium-, and long-term outcomes. Inherent in the second and third research questions is an evaluation of the process of implementation and implementation fidelity. Therefore, the research questions addressed not only the outcome evaluation, but also evaluation of the process.

Outcome Evaluation

The intervention addressed role ambiguity in instructional design teams (IDTs) with the following goals: (a) decrease role ambiguity, (b) maximize role effectiveness, (c) maximize the effectiveness of related business processes, and (d) maximize role alignment with organizational components. The logic model (Appendix C) identifies the short-term outcomes intended for the intervention. The short-term outcome of the intervention was decreased levels of role ambiguity

among IDTs. The short-term outcome measures consisted of role ambiguity scores, field notes, semi-structured interviews, and individual and group reflections.

Process Evaluation

Fidelity of implementation was defined to provide a consistent framework for evaluating the experiences of IDTs (Dusenbury, Brannigan, Falco, & Hansen, 2003). Fidelity of implementation was conceptualized for the intervention as follows: the implementation of the role analysis exercise in accordance with the instructional procedures of Dayal and Thomas's (1968) role analysis technique (RAT). The key elements of high fidelity included: (a) a minimum of three and maximum of 15 IDT members from each team recruited to participate, (b) participants' attendance of approximately four hours of face-to-face training delivered as a half-day workshop, (c) participants' completion of the role profile for each role analyzed, and (d) quality of program delivery by the facilitator (Dusenbury et al., 2003). Table 6 provides the data collection matrix for assessing the fidelity of implementation.

Number of participants. A key fidelity indicator was the number of participants taking part in the intervention. Individuals are more likely to experience role ambiguity when their roles and responsibilities overlap and/or cross boundaries and they receive diverse role expectations from different role senders (Hang-Yue, Foley, & Loi, 2005; Monahan, 1999; Singh & Rhoads, 1991). Given the complexity of the online course design process, which often requires individuals to assume multiple roles (Hokanson & Miller, 2009; Oliver, 2002; Reilly et al., 2012), role ambiguity is more likely when responsibilities overlap and interrelate among IDT members. Therefore, for the intervention to have significance and relevance, a minimum of three IDT members from each team recruited to participate was required. The researcher maintained

attendance records during the intervention to ensure at least three IDT members were participating in the sessions.

Attendance. The second, related fidelity indicator was participants' attendance of approximately four hours of face-to-face training delivered as a half-day workshop. Considering that the intervention follows a step-by-step sequential approach to role analysis, and the creation of the role profile is dependent on the successful completion of the previous steps, it was essential that participants attend the entire workshop to complete the intervention. Participants were required to sign in at the beginning and sign out at the end of the intervention. The researcher maintained attendance records during the intervention.

Participant responsiveness. The third fidelity indicator was participants' completion of the role profile for each role analyzed. Participant responsiveness is "the extent to which participants are engaged by and involved in the activities and content of the program" (Dusenbury et al., 2003, p. 34). At the beginning of the intervention, the facilitator established the significance of completing all the required steps and the final role profile to the success of RAT. Participants' completion of all the activities and the final role profiles were recorded in the established worksheet formats (Appendices L and M), allowing for the researcher to measure completion.

Quality of program delivery. The fourth fidelity indicator was the quality of program delivery by the facilitator. A team development expert was recruited as the facilitator of the intervention. Dusenbury et al. (2003) defined quality facilitation as being more than merely performing from a script. Instead, quality facilitation positions the program developer as a coach who works with all participants to achieve program objectives. The role that the facilitator played was applicable to the implementation of the role analysis exercise. The facilitator and

researcher reviewed the steps involved in Dayal and Thomas's (1968) role analysis technique and adapted them for the instructional design context, while still ensuring that the intervention remained true to the intended outcomes. To obtain data on participants' experience of the role analysis exercise and quality of program delivery, participants were asked to respond to the following question: "What was your experience in taking part in the role analysis exercise?" The use of an open question methodology allowed participants to document their thoughts about the overall program quality as well as each step involved in the role analysis exercise (Savin-Baden & Major, 2010). Following the written reflection, participants engaged in a group debrief session, allowing them to share their experiences in the role analysis exercise, discuss themes that emerged about roles within IDTs, and provide feedback for the facilitator (see Appendix K for debrief guide).

Table 6

Data Collection Matrix Assessing Fidelity

Fidelity Indicator	Data Source(s)	Data Collection Tool	Frequency	Responsibility
Minimum number of participants taking part in the intervention	A minimum of three instructional design team members were required to implement the intervention	Attendance records from the intervention	Participants were required to sign in at the beginning and sign out at the end of the intervention.	Researcher
Participant attendance	Participants' attendance of the four hours of face-to-face training provided as half-day workshop	Attendance records from the intervention	Participants were required to sign in at the beginning and sign out at the end of the intervention.	Researcher
Participants' completion of the role profile	Creation of role profile for each team member	Completed Role Profile Worksheets	Participants completed a role profile for each role analyzed.	Researcher

Fidelity Indicator	Data Source(s)	Data Collection Tool	Frequency	Responsibility
for each role analyzed				
Quality of program delivery by the facilitator	Participants' experience in the role analysis exercise	Reflection exercise where participants were asked to respond to the following question: "What was your experience in taking part in the role analysis exercise?"	Participants completed this reflection exercise at the end of the role analysis exercise.	Researcher
		Group debrief session	Participants engaged in a group debrief session at the end of the role analysis exercise.	

Effect Size

Empirical research on the implications of role analysis exercise in teams is scant and none is dedicated solely to IDTs. Even though some pilot studies and small empirical evaluations have been published on the potential benefits of role analysis exercises to improving organizational and team performance (Buch & Aldridge, 1990, 1991; Singh, 1997; Srivastav, 2010), published results often do not report effect sizes for the primary outcomes. While the effect size for interventions involving role analysis specifically is not available, existing literature does show that the effect size for organizational stress management programs and interventions

is 0.5 (medium effect size) (Baer, 2003; Klink, Blonk, Schene, & Dijk, 2001; Murray, Davidson, & Schweitzer, 2010; Richardson & Rothstein, 2008).

Given the effect size of 0.5 based on previous research in organizational stress management interventions, a power analysis using G*Power was conducted to determine approximately how many participants would be needed for testing the research hypothesis. The *a priori* calculation was performed for the intervention design and resulted in an optimal sample size of $n = 27$ (see Figure 3). Based on the sample size determined from the power analysis, the researcher recruited three teams to participate in the intervention, resulting in 29 participants in total. The intervention and associated activities were conducted independently for each team recruited to participate.

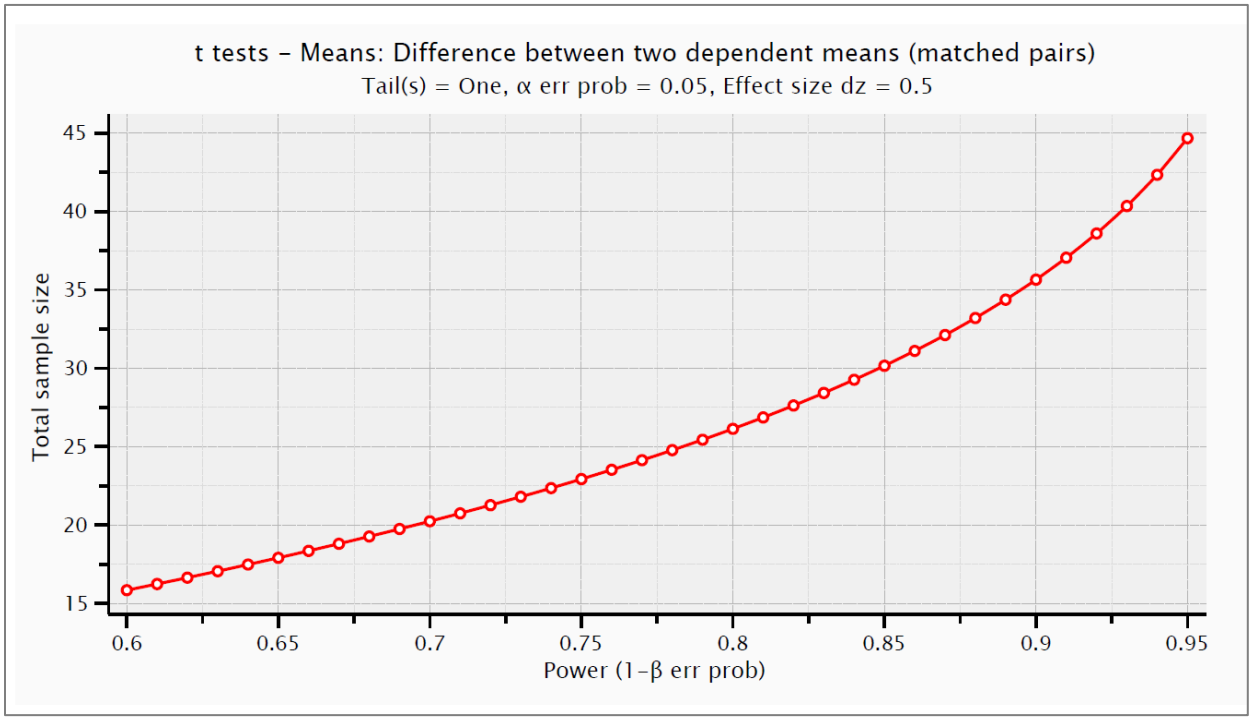

Figure 3. Power analysis using the G*Power software program.

Method

This section describes the instructional design team (IDT) participants and the procedures used to conduct the intervention study.

Participants

Participants for this study were members of IDTs involved in online course development. The teams included instructional designers, instructional technologists, project managers, multimedia personnel, videographers, executive team members, and others involved in the design of online courses—such as faculty and subject matter experts. The study participants were recruited from three professional schools at a large private research university in Maryland. The Director (or Manager) of the IDT in each school was contacted to request approval for participation (see Appendix E for the email sent to the Director of the IDT requesting approval). Upon receipt of the Directors' approval (see Appendix F for sample approval letter), they were requested to provide contact information of potential participants for the study (names and email addresses). Since the Directors had oversight over the IDTs and the roles and responsibilities of the team members, they were well positioned to recommend potential participants who met the established criteria for participation. The Director of the IDT had access to the email addresses of the individuals involved in the online course development process.

The researcher sent potential participants a recruitment email (see Appendix G) that contained: a description of the study, nature of participation, duration and purpose, possible risks and benefits, assurances regarding confidentiality, right to withdraw without penalty, and opportunities for participants to ask questions or raise concerns regarding the research. The intention of this information was to lessen any pressure the individual may feel to immediately

decide on participation. The email also included an informed consent form that participants completed and returned to the researcher (see Appendix H).

A key requirement for participants was that they must be involved, in some significant capacity, in the development of online courses. The researcher confirmed the selected participants' role in online course development with the Director of the IDT to ensure the selected participants met this criterion. A total of 29 participants were recruited to participate in the study (School 1: $n = 10$, School 2: $n = 6$, School 3: $n = 13$). The intervention was conducted independently for the IDT recruited from each school. This structuring allowed the facilitator to give personalized attention to the nuances of the instructional design process followed by each school. Participants were not responsible for any research-related costs and did not receive payment or incentives for their participation in the study. See Table 7 for demographic data for participants from each IDT.

Table 7

Participants' Demographic Information

Category	Percentage of Respondents
Ethnicity	
White (non-Hispanic)	82.6%
Asian	8.7%
African American	8.7%
Other	0.0%
Did not disclose	0.0%
Gender	
Female	56.5%
Male	43.5%
Did not disclose	0.0%
Age	
18–30	13.0%
31–40	30.4%
41–50	34.8%
51 and above	21.7%

Category	Percentage of Respondents
Roles	
Faculty	13.0%
Instructional designer	26.1%
Instructional technologist	21.7%
Executive team member	8.7%
Other	17.4%
Multiple	13.0%
Type of Institution	
Private, four-year institution	100.0%
Public, four-year institution	0.0%
Public, two-year college	0.0%
Private, two-year college	0.0%
Education Level	
Advanced degree (Master's or Other)	73.9%
Four-year college degree (Bachelor's)	21.7%
Two-year college degree (Associate's)	4.3%
Years of Professional Experience	
1–2 years	0.0%
2–6 years	26.1%
6 or more years	73.9%

Measures and Instrumentation

The study followed a quasi-experimental design, one-group pretest-posttest design without a control group (Shadish, Cook, & Campbell, 2002, p. 108). Participants self-selected to participate in the study as long as they met the following two criteria: (a) the IDT followed a team-based approach to online course development, requiring involvement from more than one person, excluding the subject matter expert (i.e., the team should include a minimum of three members); and (b) participants were involved, in some significant capacity, in the development of online courses. A within-participants design was used to evaluate the effects of the

intervention (i.e., role analysis exercise) on role ambiguity in IDT members (Shadish et al., 2002).

Participants completed the role ambiguity subscale of Pareek's (1983) Organizational Role Stress (ORS) instrument before and after the intervention to measure role ambiguity. Part one of the questionnaire consisted of demographic items: (a) role in the IDT, (b) highest level of education, (c) length of service in the IDT, (d) years of professional experience, (e) gender, (f) ethnicity, and (g) age. Part two of the questionnaire consisted of the role ambiguity subscale of the ORS instrument. The ORS is a 5-point Likert scale (0–4) containing five items for measuring the role ambiguity dimension of role stress. Scores can range from a minimum of 0 to a maximum of 20—a score of 0 represents the absence of role ambiguity and a score of 20 represents maximum role ambiguity (Srivastav & Pareek, 2008). See Appendix D for the complete questionnaire. The ORS scale has been commonly utilized for studying role stress in organizations (Bhattacharya & Basu, 2007; Dasgupta & Kumar, 2009; Srivastav, 2006, 2007, 2010) and has been shown to have high reliability and validity (Aziz, 2004; Pareek, 2004, 2005). Therefore, the role ambiguity subscale in ORS was relevant for this study.

In addition to the quantitative data collected from the pretest and posttest scores, the researcher collected qualitative data—through field notes, participant written and verbal reflections during the intervention, and follow-up interviews after the intervention—to help explain participants' reasoning for their responses in the questionnaire and to further explain the quantitative results. Throughout the role analysis exercise, the researcher took field notes using an observational protocol (Appendix I) to record contextual notes (observations and reflections). The field notes allowed for capturing of nonverbal behavior and the context in which these behaviors took place, as well as the researcher's own impressions and insights. Following the

role analysis exercise, participants were asked to respond to the following question: "What was your experience taking part in the role analysis exercise?" Participants completed this written reflection individually after the role analysis exercise. Following the written reflection, participants engaged in a group discussion session, allowing for verbal reflections. Written and verbal reflections provided insights into participants' reactions to the intervention, implementation process, and extent to which the intervention was meaningful to the participants.

Approximately three weeks after the intervention, 30-minute semi-structured interviews—either face-to-face or via web-based conferencing software—were conducted with the study participants. Of the 29 study participants invited to participate, 22 completed the interviews. The interviews provided qualitative data on the opinions, attitudes, and beliefs of participants about the outcome of the intervention. Specifically, questions were designed around the participant's role in the IDT and the influences of the role analysis exercise on clarifying role expectations and responsibilities within the team (see Appendix J for the interview protocol used to guide the interviews).

Procedure

This section provides a description of the role analysis intervention including the implementation protocols, data collection, and data analyses procedures. An intervention timeline is shown in Table 8.

Intervention

The instructional design team (IDT) from each school participated in a four-hour role analysis workshop in April 2018. The intervention took place in a large conference room on the campus of each participating school. The conference room setting allowed for small group discussions, and optimal interaction and collaboration among participants. Upon arrival, the team

was placed in a round-table format to encourage the free flow of conversation. Before the beginning of the intervention, participants completed the role ambiguity questionnaire based on the role ambiguity subscale of Pareek's (1983) Organizational Role Stress (ORS) scale. Participants who did not complete the informed consent form were given the opportunity to complete it at the workshop. The facilitator and participants provided brief introductions, followed by a concise overview of the purpose of the study, the importance of clear team roles and responsibilities, and differences between roles and job titles.

The intervention began with an ice-breaker activity based on Goldsmith's (2010) "Feedforward" exercise. Participants were instructed to think about their role in the IDT and identify a challenge they would like to address concerning their role. In turn, each participant posed the challenge to the person across from them in the room, using this format: "How can I better address the challenge of _____?" Questioners were then instructed to stay completely quiet while, for the next 60 seconds, the person opposite him or her brainstormed as many responses as possible to that question. When the 60-second bell rang, the questioner thanked his or her respondent, and the team moved counterclockwise one place to create new dialogue partners. This exercise was repeated several times, with participants rotating the role of questioner and respondent. The purpose of the Feedforward exercise was to introduce a level of familiarity and group cohesion between team members as well as provide participants the opportunity to reflect on their role intentionally.

Following the Feedforward exercise, the team engaged in the role analysis exercise involving the following activities:

- **Activity 1–Individual Roles and Responsibilities:** Using the Role Expectations Worksheet template (Appendix L), team members individually wrote brief statements

describing their perception of their roles and responsibilities as individual members of the team as well as how they perceived others' expectations of them. Each participant's worksheet was placed on the wall for easy access and continuous feedback during the workshop. Participants spent approximately 15 minutes on this activity.

- **Activity 2–Team Role Expectations:** Upon completing the individual roles and responsibilities activity, participants went around the room and read each team member's Role Expectations Worksheet and identified areas where they had questions and/or needed clarifications. Sticky notes were used to identify these areas where there were differences in opinions and/or general questions about roles and responsibilities. During the later portion of this activity, the team was introduced to the theoretical framework of role theory and the three types of role stressors—namely role conflict, role ambiguity, and role overload. As participants reviewed each team member's Role Expectations Worksheet (including their own worksheet), they were instructed to use colored stickers to identify areas where role stressors might potentially exist. Participants spent approximately 20 minutes on this activity.
- **Activity 3–Role Clarification:** After a 10-minute break, the team had the opportunity to review the worksheets as a group and discuss any differences in opinion or general observations. The facilitator guided these conversations to help the team gain clarity around each person's role and contribution to the team's operation. Participants could ask questions and seek clarification from team members. The team also compared each member's ideas about what he or she expected the other team members to contribute and discuss any differences in opinion or observations. To the extent possible, the team came to an understanding of each person's role and contribution to the team's operation. In

cases where disagreements could not be resolve—and for matters beyond the scope of the intervention—participants were encouraged to address those areas with the management and/or individuals in leadership or supervisory roles to gain clarity. Participants spent approximately 30 minutes on this activity.

- **Activity 4–Role Profile:** Based on the newly established clarity around roles and responsibilities, using the Role Profile Worksheet template (Appendix M), participants created a role profile for each role analyzed. While this was an individual activity for the most part, if more than one team member represented the same role (for example, more than one instructional designer), those participants with shared roles collaborated in creating the role profile for the role. Participants spent approximately 30 minutes on this activity.

At the completion of all the necessary activities and associated worksheets, participants took part in individual written reflections followed by a group debrief. Following the reflection activities, participants were also given the opportunity to ask any questions and engage in open discussion for approximately 30 minutes. See Appendix N for a sample workshop agenda. Before concluding the intervention, participants were reminded that they would receive a follow-up post-intervention questionnaire within two weeks via email (noting that the post-intervention questionnaire should be completed within 48 hours of receipt). Participants were also reminded that they would be invited to participate in follow-up interviews within three weeks after the intervention. Table 8 provides a summary of the intervention timeline.

Table 8

Intervention Timeline

Intervention Activity	Intervention Timeline
Participant Recruitment	March 2018
Role Analysis Workshop – School 1	April 2018
Role Analysis Workshop – School 2	April 2018
Role Analysis Workshop – School 3	April 2018
Post-Intervention Survey	May 2018
Semi-Structured Interviews	May 2018

Data Collection

Consistent with the convergent mixed methods design, both qualitative and quantitative data were collected and used to assess the outcomes of the intervention as well as the experiences of participants and implementation fidelity (Creswell & Plano Clark, 2011). Data from the pre-test and post-test questionnaire, based on the role ambiguity subscale of Pareek's (1983) Organizational Role Stress (ORS) scale, were collected before the intervention and two weeks after the intervention. Participant reflections (individual, written responses, and verbal group debrief) were gathered at the end of the role analysis exercise (see debrief guide in Appendix K). The researcher recorded observations using the observational protocol (Appendix I), which included both descriptive field notes and reflective field notes. In addition, approximately three weeks following the intervention, face-to-face semi-structured interviews were conducted with the study participants using an interview protocol (Appendix J) to obtain qualitative data about the outcome of the intervention. The interviews were audio recorded.

The quantitative data obtained from the questionnaire and qualitative data obtained from observations and interviews allowed for empirical evidence from different sources, meaningful interpretation of data, and conclusions to be drawn with an understanding of how role ambiguity influences instructional design teams (IDTs). While the role ambiguity scale served as a useful instrument to measure the effectiveness of the role analysis exercise, qualitative data obtained from the field notes and interviews helped explain and elaborate on the quantitative results.

Furthermore, qualitative data revealed insights into the intricacies and nuances of higher education IDTs that did not surface in the questionnaire. This approach provided the opportunity to interpret to what extent and in what ways the quantitative and qualitative data converge, diverge, and relate to each other, and lead to a better understanding of the implications of the role analysis exercise to minimize role ambiguity in IDTs.

Data Management

Data were stored in the researcher's password-protected computer. Records that identified participants were available only to the researcher and principal investigator. Quantitative data obtained from the pre- and post-test questionnaire were compiled in an Excel spreadsheet and uploaded to SPSS for analysis. Data captured through interviews were audio recorded and kept on the researcher's password-protected computer. Each interview was first typed verbatim and then thoroughly revised to make more comprehensible and readable transcript. Before analysis, pseudonyms were substituted for the interview participants' names.

Data Analysis

Consistent with the convergent mixed methods design, both qualitative and quantitative data were captured through the various instruments. This section describes how the data were analyzed to address the research questions. Data from the pre-and post-intervention questionnaire were compiled in an Excel spreadsheet and uploaded to SPSS for analysis. Descriptive statistics were calculated for the role ambiguity questionnaire. A box and whisker plot was generated to identify any outliers. Next, assumptions testing was conducted using the Shapiro-Wilk test of normality and Q-Q Plots to determine whether data were normally distributed. Then, to address research question one, a sign test was used to determine whether there was a median difference in participants' role ambiguity scores before and after the intervention.

Reliability tests. Cronbach's alpha coefficient (α) is one of the commonly used measures for determining internal consistency or reliability when using the Likert-scale survey or questionnaire (Warner, 2013). To establish the reliability of role ambiguity (RA) subscale of Pareek's (1983) ORS scale, Cronbach's alpha was calculated. For the internal consistency of data, a Cronbach's alpha of 0.65 to 0.80 (or higher) is recommended (Warner, 2013). As shown in Table 9, the scale has Cronbach's alpha greater than 0.70.

Table 9

Reliability Statistics

	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	*N* of Items
RA	0.779	0.769	5

Assumptions tests. Data were examined for outlines. The assumption of normality was tested on the differences between the paired values. The difference scores were calculated from the pre-intervention and post-intervention RA scores.

Data screening. A simple box and whisker plot was generated to determine if there were any outliers in the data. As shown in Figure 4 there were no outliers in the data, as assessed by inspection of a box and whisker plot for values greater than 1.5 box-lengths from the edge of the box.

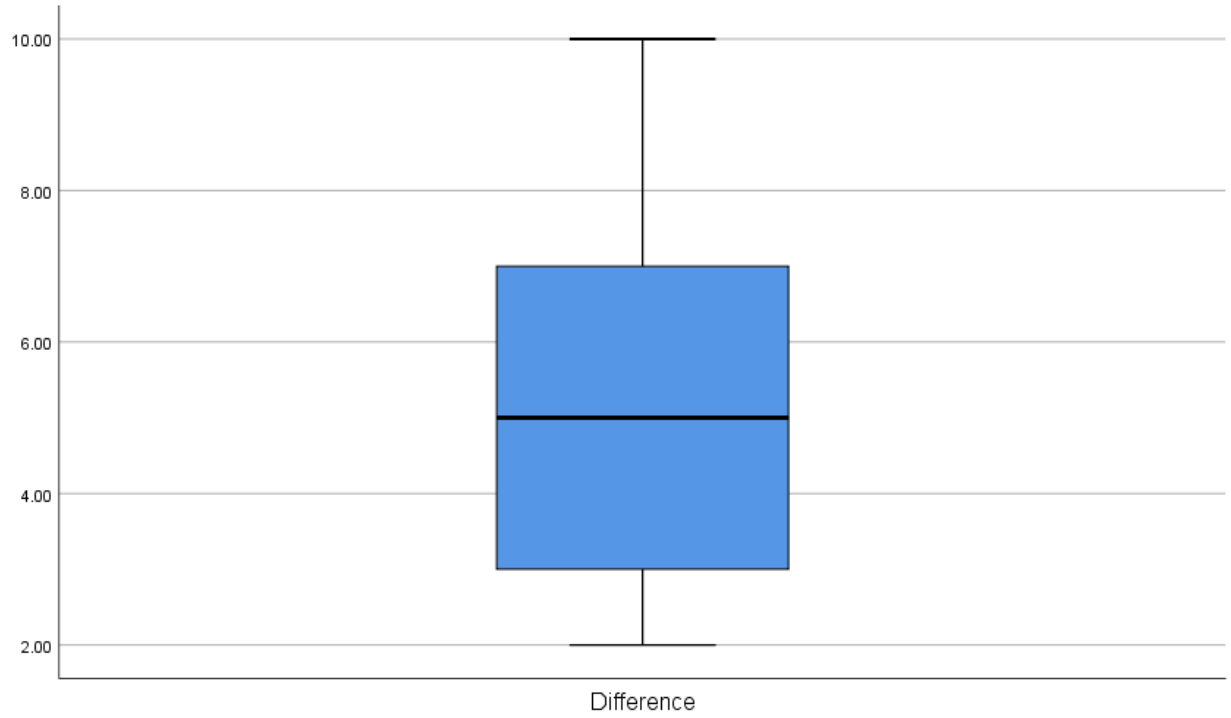

Figure 4. Box and whisker plot for difference scores of the pre-intervention and post-intervention RA scores, showing no outliers.

Normality tests. The assumption of normality was tested using the Shapiro-Wilk Test for normality ($n < 50$) alpha of 0.05. The difference scores for the pre-intervention and post-intervention RA scores were not normally distributed, as assessed by Shapiro-Wilk Test ($p = .009$). Since the data violated the parametric assumption of normal distribution (Field, 2009), a non-parametric test is needed. A sign test was used as an alternative to the paired-samples t-test or Wilcoxon signed-rank test, since the distribution of differences between the paired observations was neither normal nor symmetrical, respectively.

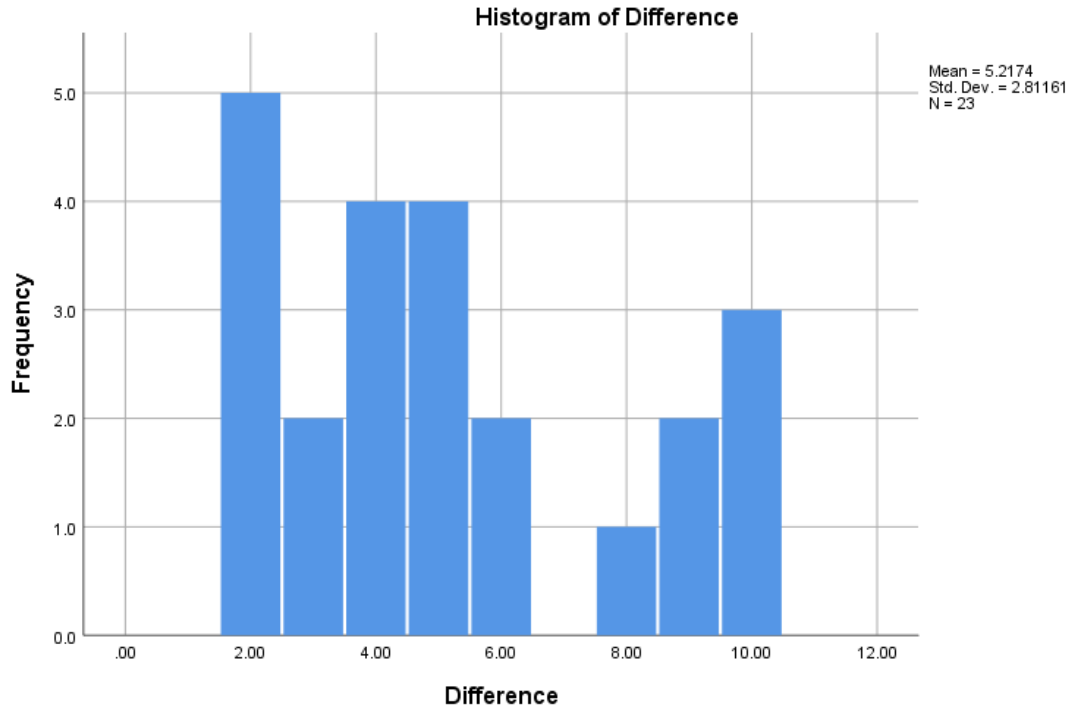

Figure 5. Histogram for difference scores of the pre-intervention and post-intervention RA scores, showing non-symmetrical distribution.

Qualitative data. Hierarchical content analysis was used to analyze the collected qualitative data. Qualitative data from individual and group reflections after the intervention, researcher's field notes kept during the intervention, and participant responses to follow-up interviews were transcribed verbatim, resulting in approximately 95, single-spaced pages text. Data from semi-structured interviews and individual and group reflections were used to address the value of the role analysis exercise and its potential to decrease role ambiguity (RQ2). Attendance records, worksheets completed by the participants, and participant reflections and interview responses were used to address the fidelity of implementation (RQ3). The researcher's field notes were used to address both value of the role analysis exercise (RQ2) and implementation of the intervention (RQ3).

Each collection of qualitative data was thoroughly examined to record initial thoughts and ideas about the text. An inductive analysis was conducted to identify common themes or patterns of greater generality (Corbin & Strauss, 2008). A hierarchy of responses moving from specific (e.g., raw data themes) to general levels (e.g., first-order themes, second-order themes, and general dimensions) was then established. Frequency analysis was used to determine the number of times a theme was cited within each of the second-order themes. After all general dimensions were identified, the researcher reviewed the emergent patterns in interpreting and generalizing the findings of this study and the implications for practice (Corbin & Strauss, 2008).

Summary Matrix

The summary matrix demonstrates the relationship between the research questions, proximal outcomes, variables, and the data gathering instruments (Table 10). The summary matrix was informed by the literature, reflected the mixed methods approach, and incorporated elements of the intervention.

Table 10

Evaluation Summary Matrix

Research Questions	Indicators	Role of Indicator	Data Source	Data Analysis
RQ1: Outcome To what extent did the role analysis exercise result in a role ambiguity among instructional design team (IDT) members, as measured by the Role ambiguity (RA) subscale in Pareek's (1983) Organizational Role Stress (ORS) scale?	Role Ambiguity Scores	Outcome Measure	Pre- and Post-Intervention Questionnaire: Role ambiguity subscale of Pareek's (1983) Organizational Role Stress (ORS) scale	Sign test to compare the median difference of the pre-intervention and post-intervention role ambiguity scores

Research Questions	Indicators	Role of Indicator	Data Source	Data Analysis
RQ2: Outcome What were instructional design team members' perceptions of the value of a role analysis exercise and its potential to decrease role ambiguity?	Field notes	Outcome Measure	Observations recorded by the researcher during the role analysis exercise	Inductive thematic coding
	Semi-Structured Interviews	Outcome Measure	One-on-one interview with the study participants approximately two weeks following the intervention	Inductive thematic coding
	Individual and group reflections	Outcome Measure	Reflection exercise sheets completed by the participants at the end of the role analysis exercise. Group debrief session at the end of the role analysis exercise.	Inductive thematic coding
RQ3: Process – Fidelity To what extent were all elements of the role analysis exercise based on Dayal and Thomas's (1968) role analysis technique (RAT) implemented as planned?	Field notes	Process Measure	Observations recorded by the researcher during the role analysis exercise	Inductive thematic coding
	Minimum number of participants taking part in the intervention	Process Measure	Maintenance of attendance records during the intervention	Participants will be required to sign in at the beginning and sign out at the end of the intervention
	Participant attendance	Process Measure	Maintenance of attendance records during the intervention	Participants will be required to sign in at the beginning and sign out at the

Research Questions	Indicators	Role of Indicator	Data Source	Data Analysis
				end of the intervention.
	Participants' completion of the role profile for each role analyzed	Process Measure	Completion of the Role Profile Worksheet	Participants will create a role profile for each role analyzed
	Quality of program delivery by the facilitator	Process Measure	Reflection exercise sheets completed by the participants at the end of the role analysis exercise. Group debrief session at the end of the role analysis exercise.	Inductive thematic coding

Conclusion

Informed by the literature and needs assessment, a role analysis intervention was implemented in three instructional design teams (IDTs) to decrease role ambiguity and promote role clarification. This chapter presented a mixed methods approach to collecting and analyzing intervention data. The proposed research questions guided decisions regarding data collection and data analysis. The chapter provided an overview of the role analysis intervention, including the goals of the intervention, intervention design, participants recruited, measures and instruments used, procedures, data collection, and data analysis. Participant responses to the pre- and post-intervention questionnaire, reflection exercises, and semi-structured interviews, as well as the researcher's field notes, were analyzed to evaluate the intervention outcome and process of implementation. Chapter 5 describes key findings from the quantitative and qualitative data collection and analysis.

Chapter 5: Findings, Discussion, and Implications for Practice

The purpose of this study was to explore the potential of a role analysis intervention to decrease role ambiguity and promote role clarification among members of instructional design teams (IDTs) in higher education institutions. Chapter 4 presented the research study design and the components of the role analysis intervention. This chapter describes the study findings organized by each research question. The following research questions focused the analyses within this study.

RQ1: To what extent did the role analysis exercise result in a decrease in role ambiguity among instructional design team (IDT) members, as measured by the Role Ambiguity (RA) subscale in Pareek's (1983) Organizational Role Stress (ORS) scale?

RQ2: What were instructional design team members' perceptions of the value of a role analysis exercise and its potential to decrease role ambiguity?

RQ3: To what extent were all elements of the role analysis exercise based on Dayal and Thomas's (1968) role analysis technique (RAT) implemented as planned?

Findings

Role Ambiguity in Instructional Design Teams

The first research question focused on the extent to which the role analysis exercise resulted in a decrease in role ambiguity among instructional design team (IDT) members, as measured by the Role Ambiguity (RA) subscale in Pareek's (1983) Organizational Role Stress (ORS) scale. The ORS is a 5-point Likert scale (0–4), containing five items for measuring the role ambiguity dimension of role stress. Scores can range from a minimum of 0 to a maximum of 20—a score of 0 representing the absence of role ambiguity and a score of 20 representing maximum role ambiguity (Srivastav & Pareek, 2008). Among the 29 participants, 23 completed

the role ambiguity scale before and after the intervention. Mean, median, and standard deviation for pre-intervention scores (RA_Pre_Score) and post-intervention scores (RA_Post_Score) are shown in Table 11. Descriptive statistics provided a general characterization of the sample. An examination of the descriptive statistics showed an increase from pre- to post-intervention for role ambiguity.

Table 11

Descriptive Statistics

	RA_Pre_Score	RA_Post_Score
Mean	6.39	11.61
Median	7.00	11.00
Standard Deviation	3.652	4.175

A sign test was used to compare the differences in role ambiguity scores before and after the role analysis intervention. The median role ambiguity score before the intervention was 7.00, while the post-intervention score was 11.00. The role analysis intervention elicited a statistically significant median increase in role ambiguity after the intervention (4.00) compared to before the intervention, $p < .0005$. It would appear that participants experienced an increase in role ambiguity after the role analysis intervention. Figure 6 shows the results of the sign test. The implications of this finding are explored in the discussion section.

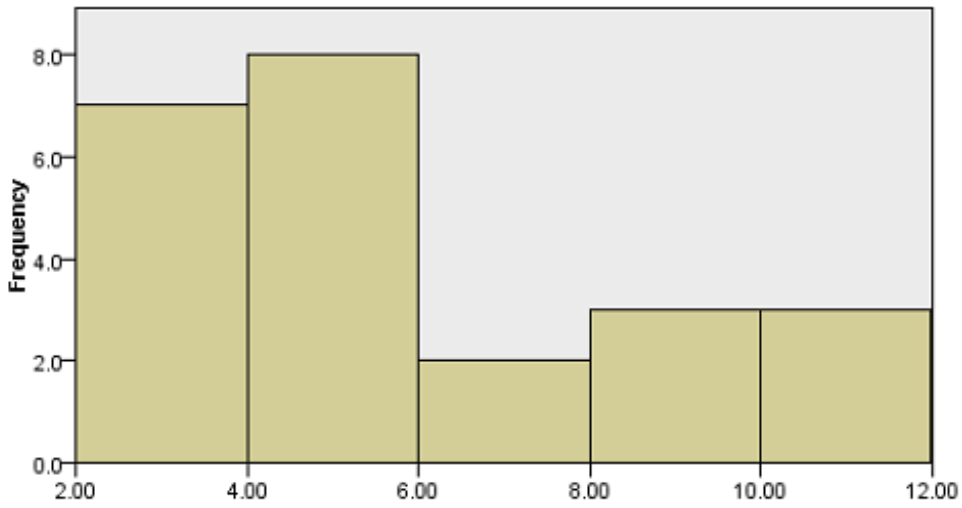

Figure 6. Results of the related samples sign test showing positive differences.

Perceptions of the Value of the Role Analysis Intervention

To address the second research question, qualitative results of the study provided comprehensive information about the instructional design team members' (IDT) perceptions of the value of the role analysis exercise and its potential to decrease role ambiguity. As described in Chapter 4, in accordance with hierarchical content analysis, a hierarchy of responses moving from specific (e.g., raw data themes) to general levels (e.g., first-order themes, second-order themes, and general dimensions) was established. First-order themes represented the factual and preliminary data, while second-order themes were attempts taken by the researcher in explaining "the patterning of the first-order data," and creating "interpretations of interpretations" (Maanen, 1979, pp. 540–541). Finally, second-order themes were clustered into more abstract, higher-order themes (i.e., general dimension).

Themes from the data fell into seven second-order themes and three general dimensions. The three dimensions represented: (a) participants' perceptions of the value of the role analysis exercise in providing opportunities for collaboration and reflection on roles, (b) stressors and challenges faced by the IDT, and (c) the diversity of the IDT roles and responsibilities in the

online course development process. Table 12 shows an overall representation of the classification system of responses obtained regarding RQ2 via written reflections, group debrief, field notes, and follow-up interviews.

Table 12

Value of the Role Analysis Intervention: Hierarchical Analysis Results

First-Order Themes	Second-Order Themes	General Dimension
• Positive, fun, and enjoyable • Space to have conversations with the team • Informative, insightful, and educational • Good chance to bond with faculty • Opportunity to interact and collaborate	Social Experience *n* = 18	***Collaboration and Reflection on Roles***
• Clarify roles versus expectations • Underscore the dynamics of the other roles • Ask questions and provide direct clarification • Clarity in how everyone fits in the overall vision • Differences between titles versus roles	Clarity Around Roles and Responsibilities *n* = 45	
• Different perspectives and expectations of roles • Congruence or lack of congruence in perceptions of roles • Consider ideas from different perspectives • Gain different perspectives— faculty, instructional designer, instructional technologist, manager etc. • Roles versus expectations—expectations are far greater than current roles	Different Perspectives and Perceptions *n* = 27	
• Systematically analyze and engage in an in-depth dive into one's own roles • An introspective experience • Allow for self-reflection and community awareness • Help see how much more IDTs do	Introspection and Self-Reflection *n* = 22	
• Highlight the issues faced by team members • Bring perspective to how much IDTs manage and juggle. • Acknowledge and reinforce areas of role stress • Not necessarily eye opening, but comforting • Highlight team's common questions and concerns	Presence of Role Stress *n* = 12	***Role Stressors and Challenges***

First-Order Themes	Second-Order Themes	General Dimension
• Ambiguity among faculty about IDTs' roles • Acceptance that the IDT is overloaded • Insight into types of role stressors and the underlying reasons • Overlap between roles • Imbalance or an inequity in workload	Manifestation of Role Stressors *n* = 28	
• Multiple roles of people involved in online course development • Often being asked to "play out of position" • Instructional designer becomes the main point of contact for all support • IDT responsible for technical/administrative tasks • IDT viewed as IT help desk • Overlap in roles and responsibilities	Multiple Roles of the IDT Members *n* = 40	***Diversity of Roles and Responsibilities***

Collaboration and reflection on roles. Four second-order themes on the role analysis exercise contributing to opportunities for collaboration with the team and reflection on roles were identified: (1) social experience; (2) clarity around roles and responsibilities; (3) sharing of different perspectives and perceptions; and (4) opportunities for introspection and self-reflection. Each of the second-order themes related to this dimension is delineated below.

Social experience. Qualitative data indicated that the participants enjoyed the social interaction, and that the intervention gave them the opportunity for meaningful conversation with their team members and others involved in the development of online courses. They described the interaction being a crucial component of the IDT's ongoing collaboration. Positive team culture and the opportunities for relationship building with team members is a benefit that is consistent in the literature on factors that contribute to successful functioning of the IDT (Pan &

Thompson, 2009; Ritzhaupt & Kumar, 2015). Nora[1], a faculty participant, explained that the intervention allowed for interaction between faculty and staff involved in online course development:

> One of the best things about it [intervention] was the interaction between faculty and staff. I sometimes feel like everyone is in their own little world and they don't think to tell people simple things, and it causes confusion and angst. It allowed us to bridge a lot of gaps in terms of interaction between faculty and staff. You don't interact with people every day because if you're a professor, you work from home or work from different campuses. So there are a lot of people whose names I see, but I don't connect it to the person. I have a much better idea what each person in the team [IDT] does and have a much better idea of who each person is. And, it was just really nice to interact with them. There wasn't something we had to get done—to get from point A to point B. It was almost a social occasion, but it was still working. (Nora, interview, May 16, 2018)

The idea that the role analysis exercise provided a space for social interaction between faculty and staff was also echoed in Steven's comment:

> I think it was excellent to have a chance to work with and talk with some of the faculty in a non-working function. It allowed us to find some common ground. I personally have found, not just here but in higher education in general, there's a bit of a divide between staff and faculty. It's a tricky one that every institution deals in trying to bridge that. It was a good opportunity to interact with faculty in a non-formal setting. (Steven, interview, May 16, 2018)

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[1] All participant names are pseudonyms.

In addition to providing a space for social interaction, participants expressed that the intervention provided a forum for open conversation between team members regarding roles and responsibilities. For Kate, an instructional technologist, the process of going through the role analysis exercise helped her empathize with the challenges that her team members face:

> I think it gave me more empathy. It helped me empathize with some of the issues going on with other members of the team. I try to be a little bit more communicative with my team members about projects and that does lead to a better collaboration or at least the potential for better collaboration. (Kate, interview, May 16, 2018)

Qualitative data obtained from individual written reflections and during group debrief revealed attitudes about the experience of going through the role analysis exercise. Uniformly, participants enjoyed these conversations and felt that the open dialogue allowed for relationship building between IDT members that can extend beyond the development of online courses. One participant expressed that it provided an avenue for team members to vent their concerns, share their experiences, and voice their opinions: "The workshop was also helpful because it's good for some people to vent. This was very helpful for the team to bring clarity to roles and where we are going with our growth. It made them feel like they are part of the process" (Nancy, interview, May 8, 2018).

Clarity around roles and responsibilities. A primary goal of the intervention was to initiate and promote role clarification among participants. Consistent with the intervention goal, a theme that emerged was the opportunity to seek and acquire clarity around roles and responsibilities. Participants found that they were able to clarify roles and responsibilities as well as focus on the expectations of others. This was enabled through the opportunities to ask team

members what their expectations were and provide direct clarification. Betsy, a faculty participant, shared,

> It really helped us know what all the different people did within the team, who was responsible for what and how the team worked together. With the growth of the team, it's just hard to keep track of the new people and how things are getting divvied up differently. We got a clear understanding of what our role was in designing online classes and then the roles of people in the online team [IDT]. We were able to find out what their responsibilities were and where they came in at different points to help and assist faculty with different things. I also have a better idea now about who to contact about what. (Betsy, interview, May 17, 2018)

Considering the diverse roles that instructional designers and instructional technologists serve in online course development (Dooley et al., 2007; Koehler & Mishra, 2005; Pan & Thompson, 2009), it can be challenging for faculty to have a nuanced sense of how these roles unfold and interact, and how the IDT as a whole fits together in the online course development process, more generally. One faculty participant, Chen shared:

> We always want to get help sooner, but I don't think we are all very patient to spend time to understand each other's responsibilities and roles. We make assumptions about what people do and that's part of the source of delay and frustration. So, the workshop actually forced me to understand the team's roles a bit better. (Chen, interview, May 16, 2018).

Faculty participants shared that understanding roles allowed them to better leverage IDT's expertise to improve online teaching and learning (that is, "know who to go to"). Participants in other roles (such as instructional designers, instructional technologists,

multimedia personnel, etc.) felt the intervention helped see where their role was in relation to other individuals' in the team. Steven explained:

> It was really good for having an understanding of what everyone's roles were. It wasn't just good for team building and camaraderie, but it was also good for understanding what goes into other people's piece of the puzzle and how I can conduct myself a little better, how I can revise my workflow to make their life a little easier. (Steven, interview, May 16, 2018)

Besides being able to articulate roles and convey expectations, participants also noted that the intervention provided an opportunity to share stressors and begin to clarify roles versus expectations. Participants found the process of thinking about their roles intentionally and articulating expectations to others beneficial to team collaboration and performance. This was reflected in Kate's comments:

> It was nice to bounce ideas off of another Instructional Technologist, talk through the responsibilities of our position and come up with expectations—what other people expect and what we won't necessarily want to do in our position. It was helpful to extract more meaningful examples that we could share with everybody. (Kate, interview, May 16, 2018)

Different perspectives and perceptions. Role ambiguity arises when individuals lack clear knowledge about how to perform their job (Srivastav, 2007). Recognizing the congruence or lack of congruence in how individuals perceive their roles versus how others perceive them can lead to identifying areas where role ambiguity might exist. Participants shared that the intervention allowed them to make a purposeful effort in examining their work from different perspectives and perceptions. John explained:

> The activity of writing up your roles and responsibilities from different perspectives is definitely very helpful. Talking to other people and mapping out my perspectives and thinking about how other people view my role and writing down the job description helped me look at my role more objectively. (John, interview, May 15, 2018)

The intervention highlighted differences in how participants perceived their roles in contributing to online learning. One faculty participant expressed that people have an impression that she was supposed to be a "teacher" or "giver of knowledge" while she saw herself as a "facilitator" in an online setting. Similarly, participants also discussed the misconceptions that exist around the roles of technology staff involved in online course development. Michael shared:

> We need to educate faculty on the roles of technology staff. For example, the difference between a videographer/video editor versus a project coordinator. Editor is specific to a task while coordinator is more holistic to the project. An editor is told what the end product should be. Coordinator brainstorms how a video fits in to the project. (Michael, interview, May 17, 2018)

Different perspectives and perceptions about the role of instructional designers emerged consistently during the intervention as well as follow-up interviews with the participants. A common theme was that faculty perceived instructional designers as being responsible for the managerial and operational aspects of a course rather than as experts who provide pedagogical, content, and instructional support to improve teaching and learning. Nancy shared:

> In our role as instructional designers, a lot of people think we are tech support. A lot of people also think that the way it works is they just dictate to us the changes to their course sites and we are supposed to go in and make them. Of course, that's really not

> what our role is. We are supposed to be instructional designers. We are supposed to be collaborating with faculty to set up their course site in a way that promotes student learning and engagement. But quite often, we are in crunch time. We have all these courses that need to be set up and you do start to slip into that, "Fine, I'm just the task manager. I'm just going to get these things set up and out the door." Faculty forward questions that come from students. Student troubleshooting is totally out of our realm—that is why we have Blackboard help desk. (Nancy, interview, May 8, 2018)

Another theme was that staff were often charged with fulfilling technical and administrative responsibilities when supporting faculty. Some participants noted that they were viewed as "faculty secretary"—to provide faculty support in the role of an administrative assistant or a technician. One instructional technologist noted, "They know I am here, why won't they ask? I am the answer lady. I am constantly in the reactionary administrative role as opposed to being an instructional technologist" (Lisa, interview, May 24, 2018). The support roles identified by participants ranged from providing general technology support in online courses to helping faculty with scanning documents, making copies, and supplying stationery materials for face-to-face classes. The general theme of instructional technologists being viewed as an *IT help desk* as opposed to providing instructional technology expertise was also echoed by several participants.

Participants in leadership roles also experienced differences in perceptions of roles and responsibilities. One participant noted that the Director of the IDT is often perceived as responsible for "everything online." For example, issues related to advising online students as well as student behavioral issues in online courses are perceived as under the purview of the Director. Robert shared:

> The Director's role is diverse—includes technical aspects (day-to-day managerial responsibilities) as well as serving as a leader. The Director is expected to serve as a Financial Manager (revenue projections) that can be out of their scope of expertise. I am not a financial manager preparing budget and revenue projections. (Robert, group debrief, April 17, 2018)

The activities led to organic conversations around how individuals saw their roles versus how others saw their roles, and the frustrations they felt when people lacked an understanding of their roles. One participant noted, "I was forced to react to the problems or concerns of other roles. I was able to pursue a more comprehensive understanding of my colleagues' understanding of their roles and conflict between their expectations and the expectations of others" (Michael, interview, May 17, 2018). Overall, participants found the opportunity to identify their own roles and responsibilities and compare them with what others expected of them to be helpful.

Introspection and self-reflection. Nearly all participants reported that they valued the intervention for self-reflection. They noted that it gave them the ability to "think on a deeper level" about their own roles and responsibilities and allowed for self-awareness and introspection. Michael explained:

> It was introspective because I focused a lot on my role. It is something that I have always struggled with, but it was a problem I never set down and evaluated to truly understand—what elements were confusing about the expectations of my role and the actual responsibilities of my role. It gave me a better understanding of all factors at play. It was very self-reflective. (Michael, interview, May 17, 2018)

John shared similar thoughts on the opportunity for self-reflection:

> I felt like I never had an opportunity to sit down and reflect on my roles and responsibilities. So, I think that's a very helpful exercise. It forced me to jump out of my own role or in my own thinking and think from others' perspectives. It provided me with the opportunity to systematically reflect on my roles, what the functions and responsibilities are and how it is related to other parts of the department. Overall, it was useful for individual self-growth or revelation. It helped me think about how my role connects with rest of the team. (John, interview, May 15, 2018)

Furthermore, the hands-on and visual components of the role analysis exercise lent themselves to cultivating a better understanding of the various dimensions of each role within the IDT. Lee, who is in a senior leadership role, explained:

> It was helpful in terms of making me think explicitly about my own role and the dimensions of my own role. I very much liked the templates, the structured graphical organization that you gave us on the flip chart paper. It allowed us to chart and separate the different components of our role and then to look at some of the related aspects. I thought everyone charting that out individually was really helpful. In terms of just naming and giving clarity to my understanding of my own role, the graphical interface for this workshop was a very helpful tool. (Lee, interview, May 17, 2018)

The four themes discussed above formed the general dimension of the role analysis exercise contributing to collaboration and reflection on roles. Qualitative data suggested that it not only gave participants the chance to talk more deeply and share with colleagues, but also to seek clarity on the different roles involved in creating and facilitating an online course. Participants also noted that the intervention highlighted the main areas where differences in perceptions existed. One participant noted, "I found that identifying my roles and responsibilities

and comparing them with what others expect of me was very helpful. Time to re-write job descriptions" (Lauren, interview, May 17, 2018). Furthermore, it sparked self-reflection and community awareness in terms of the IDT members' roles, how they relate to each other, and ways to support each other.

Role stressors and challenges. Two second-order themes on the role analysis exercise underscoring the role stressors and challenges faced by instructional design teams (IDTs) were identified: (1) presence of role stress, and (2) manifestation of role stressors. Each of the second-order themes related to this dimension is delineated below.

Presence of role stress. A common theme that emerged across the three intervention groups was the need to validate the presence of role stress in IDTs. Participants suggested that they benefited from seeing that others had similar questions and concerns about their roles in the organization. They also noted that the exercises brought perspective to how much the team manages and juggles and "to see the pull from different directions." Kate shared:

> I think that it helped me understand that there is role ambiguity for everyone. When you experience role ambiguity or any job stressors, you just sort of internalize and say, "Okay, this is only happening to me." It allowed me to break out of that and realize that other people also have stressors—and in some cases those are exactly the same stressors and in other cases they are completely different. It helps us see stressors and pain points for the team. So, we can think about how we can reduce the organizational stressors in a systematic way that will reduce it in the future. (Kate, interview, May 16, 2018)

Echoing Kate's comments regarding role ambiguity, another participant noted that being able to see the ambiguity across roles was "not necessarily eye-opening, but it was comforting" (Nancy, interview, May 8, 2018). Given that the nature and effects of role stress have not been

extensively studied within the higher education, and, specifically, IDT contexts (Dyer & Dyer, 2013; Harvey & Drolet, 2004; Lyons, 1993; Rahim, 2010), the intervention provided a platform for validation of role stress among individuals involved in online course development.

Manifestation of role stressors. In addition to validating the existence of role stress, participants noted that the intervention provided insights into the various ways in which role stressors can manifest in online course development contexts. A common theme that emerged was a general sense of acceptance that IDTs experienced role stressors on a regular basis and had become accustomed to this milieu of competing demands, ambiguity and overlaps in roles, and overload in the work environment. Amy shared:

> There is a general sense of acceptance that the team is overloaded at certain times and there is crossover in terms of roles and responsibilities. I think we all know what our responsibilities are, but we have never really realized what we are doing in addition to that—what we have put on ourselves. I think that it made us aware of how much we are putting on ourselves in addition to what our primary role should be. (Amy, interview, May 17, 2018)

Speaking specifically about role stressors experienced by instructional technologists, another participant shared:

> I'm an Instructional Technologist and technically I'm just supposed to fix issues and train faculty on how to use different technologies. But I'm managing several other projects outside those areas. It's just assumed that these other projects will be done and there's no clear definition of what the supervisor will handle. The distribution of work is not equal. (Lauren, interview, May 17, 2018)

Another participant shared challenges associated with the role of instructional designers:

> There's an imbalance or an inequity in workload. I'm not saying we need more instructional designers. I think we just need people on the team with a different skill set. So right now the expectation is on the instructional designer to go and build media elements. And, some of us have the skill set, some of us don't. We don't have the time to learn. We have the desire to learn, but we don't have the time. (Tina, interview, May 11, 2018)

Participants shared factors that contributed to role stressors: "We are all striving to give the best customer support to our faculty. Hence, we are overloaded and have multiple role conflicts" (Emily, interview, May 9, 2018); "I have a lot of projects that I am managing . . . it's because of convergence of multiple projects" (Amy, interview, May 9, 2018); "Faculty's ability to meet deadlines presents a huge challenge to the expectation that we have to bring innovation, creativity, and student engagement" (Tina, interview, May 11, 2018); and "There is role ambiguity, particularly with regard to leadership hierarchy. So, I have three people in leadership telling me different things and giving me a somewhat conflicting directives" (Steven, interview, May 16, 2018).

Another theme that emerged was that participants' work commitment, motivation (personal and professional), and self-regulating mechanisms influenced how they managed role stressors. For example, in discussing role overload in IDTs, one participant noted, "I am doing this to myself because I care about my job." Similarly, another participant shared, "When someone asks for help, I don't want to push them off." Tina explained further:

> I feel like we are all overloaded at the same time very dedicated to provide the services that faculty and students want. Sure, you can define all these roles, but ultimately it is about what is best for our faculty and students. (Tina, group debrief, April 6, 2018)

Amy echoed similar thoughts:

> It was really good to see how much in addition that we have made our jobs and that's because we love what we do. We want to do as much as we can and we want to be rock stars. Well, I want to be a rock star. (Amy, interview, May 9, 2018)

Some participants also noted that they are often willing to take on tasks that fall outside the scope of their job, owing to long-term career goals. For example, Michael shared, "It is how I execute my role that is going to be indicative of where I want to go. So, if I want to be in a different place, I am going to take on more roles and responsibilities for myself" (Michael, interview, May 17, 2018). This seemed to indicate that IDT members may be overachieving or taking on tasks that are outside of their role if those additional responsibilities align with future career goals. This finding is consistent with Lepine, Podsakoff, and Lepine's (2005) research on the relationship of work stressors and strains, motivation, and performance.

While participants provided valuable information about their experiences of role stressors within the online learning context, they recognized that the intervention prompted them to think about some of the underlying areas of tension or the dimensions that need to be kept in balance for effective team functioning. It also gave them a glimpse of what challenges others encounter and areas where they experience similar stressors. One participant expressed, "Very helpful to hear about the multiple roles of various stakeholders. This detailed look at our own roles and exposure to others' provided a lot of insight into types of role stressors and the reasons for those" (Lee, written reflection, May 17, 2018).

Diversity of roles and responsibilities. Consistent with existing literature, the intervention revealed the diverse nature of instructional design practice (Dooley et al., 2007; Hokanson & Miller, 2009; Pan & Thompson, 2009; Ritzhaupt & Kumar, 2015). Participants

identified several competencies relevant to instructional designers' work, including project management, course design, course administration, training, and technology support. Further, even though an instructional designer's work typically involved providing pedagogical support, one participant shared that instructional designers are often expected to train faculty on using software on an as-needed basis—that is, provide *in context* technology training. In many cases, the instructional designer became the main point of contact, providing faculty support in all facets of online course development and management. One faculty participant described the role of an instructional designer as follows:

> Instructional designers' role includes helping "ease nerves" and letting faculty vent. They need to be there and be available. They need to guide faculty in presenting content. They need to draw from me what I did in the onsite [face-to-face] offering and transfer that to an online learning environment. They perform content curation, provide technology guidance, and share experiences in what works and what doesn't work. (Nora, interview, May 16, 2018)

In discussing the core competencies of instructional designers, one instructional designer shared the importance of project management:

> For me, the project management piece is probably the part that I'm really going to need to keep up with. As an instructional designer, project management is critical. It doesn't matter if you are creative or not. If the courses aren't ready, nobody cares if you are creative. But if the courses are not running, then they care. If they're not ready, then they [faculty] get upset. So that's the piece I'm going to need to keep tweaking and making sure that system is still working for me as my course load begins to grow. (Amy, interview, May 9, 2018)

The wide variance in the interpretation of faculty's role in online course development and facilitation was also discussed during the intervention. This included serving as a course designer, providing a roadmap for teaching, revising and gathering feedback, collaborating with instructional designers and other faculty, as well as "moving the course forward." Several participants shared concerns involving crossover in roles and responsibilities and often being asked to "play out of position." For example, Kate shared that "instructional technologists are sometimes perceived as serving the same role as the multimedia technician. Instructional technologists provide course support, not student support. Student issues should go to the technical helpline, not instructional technologists." She added,

> I think one of the biggest issues as far as instructional technologists goes is that the role can be very ambiguous—what is instructional technology, where does it stop, what level of support do we provide in terms of course delivery? For example, when an instructor has an issue with their live course, do they go to the instructional technologist, instructional designer, support center, or do they email everybody? So defining roles is an issue. (Kate, interview, May 16, 2018)

The overlap in roles and responsibilities of instructional designers, instructional technologists, and multimedia technicians was a recurring theme. Participants suggested that one way to delineate the role of instructional designer and instructional technologist is the instructional designer provides content (pedagogical) guidance while the instructional technologist provides guidance on how to use the tool (technical). Similarly, a multimedia technician provides "how to" while an instructional designer provides support in terms of instructional strategies for implementation.

Ultimately, participants acknowledged that the evolving field of online education does not lend itself to rigid role definitions; organizational structures need to become more fluid to accommodate greater flexibility, collaboration, and optimal use of people's skills and expertise. This was reflected in statements such as the following:

> I think our roles are already evolving pretty often and I think it's just going to accelerate. It is difficult to have very defined roles because of external factors. So, you need to be flexible to adapt to social changes and evolution of technology. Also, when new people join the team or existing members' roles change, roles need to be redefined. I think we need to not have a rigid definition of a role because we need to be able to adapt. (Ronald, interview, May 9, 2018)

Another participant shared:

> I don't think it is possible to say you can just do this one role. I don't think it will ever be this "box." It is always going to go outside the box. If we have a clear definition of what our roles and our responsibilities are, it will help us in figuring out what we are going to contribute outside of that area. If we have a clear definition, we can decide what we can contribute outside the area. As much as you try to make systems, you can never make it cookie cutter because we are people and there is gray area. Ambiguity exists, gray areas exist. People often strive for black and white because it is easier for the individuals. However, this can sacrifice what the team can accomplish. (Michael, interview, May 17, 2018)

While participants recognized the diverse roles of individuals involved in online course development, they also concurred that it could be challenging to have rigid role definitions given the evolving nature of online education. Participants shared that the role analysis exercise was

helpful in understanding the dimensions and nuances of the roles fulfilled by team members. As one participant noted,

> Before you write it all down, it's really hard to grasp the multitude of things that our team does. There are many different hats that are worn by members of the team and I think that having an activity we did to map it all out was valuable. It was beneficial browsing each other's notes and then making comments. It was a vivid thing to point out like, "Oh, how did they do all of these things." So I think that was revealing. (Lee, interview, May 17, 2018)

Overall, qualitative data obtained via written reflections, group debrief, field notes, and interviews provided several insights in addressing RQ2 that focused on participants' perceptions of the value of a role analysis exercise and its potential to decrease role ambiguity. While participants did not report that the role analysis exercise had a direct influence on decreasing role ambiguity, it led to uncovering common themes on the roles of the IDT. These themes included: (a) the significance of opportunities for interaction between faculty and staff in formal and informal settings, (b) clarification of the roles of team members, (c) understanding of different perspectives and perceptions of roles, (d) examination of one's own roles and reflection on associated responsibilities and tasks, (e) validation of issues related to role stress, (f) insights into how role stressors manifest in the context of online course development, and (g) the multiple roles of individuals involved in online course development.

Intervention Fidelity

Results from several measures informed the response to the third research question, which explored the fidelity of intervention implementation. According to Rossi, Lipsey, and Freeman (2004), process evaluation measures "whether or not it [program] is delivered as

intended to the target recipients" (p. 171). In this study, process evaluation involved the extent to which all elements of the role analysis exercise based on Dayal and Thomas's (1968) role analysis technique (RAT) were implemented as planned. The intervention fidelity was assessed using: (a) a minimum of three and maximum of 15 instructional design team (IDT) members from each team recruited to participate, (b) participants' attendance of approximately four hours of face-to-face training delivered as a half-day workshop, (c) participants' completion of the role profile for each role analyzed, and (d) quality of program delivery by the facilitator (Dusenbury et al., 2003).

The first measure of fidelity was the number of participants taking part in the intervention. Considering that complexity of the online course design process often requires individuals to assume multiple roles (Hokanson & Miller, 2009; Oliver, 2002; Reilly et al., 2012) and role ambiguity is more likely when responsibilities overlap and interrelate among IDT members, a minimum of three and maximum of 15 participants from each team was required for high fidelity. In accordance with this requirement, a total of 29 individuals participated in the study (School 1: $n = 10$, School 2: $n = 6$, School 3: $n = 13$).

The second fidelity measure was participants' attendance of approximately four hours of face-to-face training delivered as a half-day workshop. Since the intervention followed a sequential approach to role analysis and the creation of the role profile was dependent on the successful completion of the previous steps, participants were required to attend the entire workshop to complete the intervention. The attendance records maintained by the researcher during the intervention confirmed full attendance of all participants throughout the role analysis exercise.

The third fidelity measure was participants' completion of the role profile for each role analyzed. During data analysis, all role profile sheets were thoroughly analyzed and it was determined that participants completed all the required steps and the final role profiles were recorded in the established worksheet formats.

The fourth fidelity measure, quality of program delivery, was measured with tools designed for participant feedback after the intervention. Qualitative data obtained from interviews, written reflections, and group debrief sessions resulted in five second-order themes and one general dimension. Table 13 shows an overall representation of the classification system of responses obtained regarding the quality of program delivery via written reflections, group debriefs, and follow-up interviews.

Table 13

Quality of Program Delivery: Hierarchical Analysis Results

First-Order Themes	**Second-Order Themes**	**General Dimension**
• Broken down concisely to facilitate analysis • Role definition at the end was beneficial • Enable thinking of all of the aspects of the role in a quick but thorough way • Clearly defined and explained • Concisely structured for analysis of roles	Analysis of Roles and Responsibilities *n* = 14	***Intervention Design, Implementation, and Representation of Roles***
• Provide timely feedback for challenges • Clarify terminology when explaining activities • Offer pointed instructions and tags • Clarify instructions for the different activities • Provide more structure and rules for engagement	Instructions and Guidance *n* = 15	
• Extend the workshop for a more in-depth conversation and collaboration with the team • Offer follow up materials to work on as a team • Provide a follow-up workshop at a later date • Offer resources to accompany the agenda • Provide preparatory materials and opportunity to do pre-work to formulate ideas more coherently	Opportunity for Preparation, In-Depth Discussion and Follow-up *n* = 33	

First-Order Themes	Second-Order Themes	General Dimension
• Faculty representation is crucial • Involve faculty more to minimize ambiguity • Less impactful if only person represents a role • Ensure each role has more than one representative • Ensure diverse roles are represented • Consider the advantages and disadvantages of having faculty and leadership representation	Representation of Roles *n* = 20	

Intervention design, implementation, and representation of roles. Four second-order themes regarding the intervention design and implementation provided insights into the quality of program delivery: (a) analysis of roles and responsibilities; (b) instructions and guidance; (c) opportunity for preparation, in-depth discussion and follow-up; and (d) representation of roles. Each of the second-order themes related to this dimension is delineated below.

Analysis of roles and responsibilities. High fidelity was evident in participants' responses that the intervention design and implementation processes provided opportunities to engage in a structured analysis of roles and responsibilities. Participants noted that the exercises were broken down concisely to facilitate analysis of roles and the use of role stressors as a framework was useful in understanding the specific challenges faced by team members. Roger explained:

> I thought it was structured very well. I liked how it built up throughout the workshop. I especially appreciate it because we didn't think we had a ton of foundation for it before we walked in. But it became apparent very quickly to me that it was well designed and scaffolded properly so that, by the time we got through the end we were doing something relatively complex. (Roger, group debrief, April 17, 2018)

A faculty participant commented on the structure and attributes of the exercise contributing to a thorough analysis of roles and responsibilities:

> I thought it was a great balance of opportunities to get up, walk around, and interact with everyone at different points. You were asking fundamental questions about people's roles and everybody had to answer from their perspective, and in doing that we all learned about what each other does. It was very simple, straightforward, direct, meaningful questions from the perspective of each person's job. Everyone was giving their answer from the perspective of what they did. By doing that, we all learned about what each other did. (Nora, interview, May 16, 2018)

Participants liked the hands-on nature of the activities as it gave them the opportunity to "get up and move around." Amy shared, "It was a good variety of things so I definitely was not bored and I was engaged the whole time" (Amy, written reflection, April 6, 2018). Participants also remarked on the facilitator's management of discussions, keeping them on task and establishing the objectives of each activity. One participant said the facilitator created awareness of roles and responsibilities and identified areas for collaboration. Another participant noted that the intervention was non-threatening, positive, and allowed for teambuilding. In addition, the facilitator's approach to "keeping the discussion going" and guiding conversations was echoed in Michael's comments:

> I liked how concise the workshop was structured. Often, there is just so much extra that gets put into conversations, and then conversations get longer and more complex, and bigger than they need to be. I liked that we were able to focus on what's the one thing that we cared about and were able to dig into that in concise ways. It forced people to prioritize. In a more extended workshop, where you have more time, people allow

themselves not to do that because they have more time, more flexibility, or more control over engagement. (Michael, interview, May 17, 2018)

Michael's remarks demonstrated how the intervention design and implementation techniques promoted dialog and progress toward role analysis and clarification.

Instructions and guidance. Participants mentioned that more detailed instructions and rules of engagement would have been useful in completing the activities. Responses suggested that succinctly articulating ideas and differences between tasks would have been helpful in completing the role analysis exercise. Roger elaborated on the need for more explicit instructions and guidance during the intervention:

> I think the only thing that I would tweak is that it was confusing at times when we got through defining the roles on paper. I don't know if it was us or the description of it, but it took us a little while to figure out what we were supposed to do on the paper. (Roger, written reflection, April 17, 2018)

Participant responses indicated the need for more clarity in instructions and terminology when explaining activities. Lee described the need for more guidance to allow participants to see the connections between the role analysis and role profile:

> The facilitator can guide the discussion to help people look at the broad landscape of the role and make connections. Help the group analyze and identify themes that emerged from the role profiles. For example, when you identify role stressors, encourage participants to discuss them more openly in the group and make meaning of those theories in the context of real practice. Give people more of an inductive chance to make their own connections between themselves and the stressors as they identified them. (Lee, interview, May 17, 2018)

Opportunity for preparation, in-depth discussion, and follow-up. An important practical lesson emerged regarding the length of the intervention. Qualitative feedback suggested that the design would have benefited from more time for the participants to process and reflect, as well as revisit topics discussed during the intervention. Due to scheduling challenges, the intervention was limited to a four-hour face-to-face workshop. Participants shared that the intervention would have benefited from more time before, during, and after the workshop. This would have permitted participants to engage in deeper and more meaningful discourse. Lee explained:

> It would be helpful to have a second step to the workshop, one that would allow for deeper, meaningful analysis. It's almost like a second step and it might be good to have a gap in between the experiences because of the additional processing and reflection that might happen in between the two workshops. I think that having an individual reflective component and then making sense of that in terms of sharing with everyone else and coming up with some group identified themes can be very helpful. Since there are teams that are already working together, it can also lead to action steps in some cases. There might be some obvious remedies that can be taken based on what was revealed during that second discussion. (Lee, interview, May 17, 2018)

He added:

> While I found that [intervention] helpful, one thing that is worth exploring more and could be developed into a fuller discussion, if there were time for that, would be to examine as a group more of the connection between roles as we see them. The connection between our roles to be able to identify, analyze and devise strategies to deal with actual instances of where there might be real ambiguity or any of the role stressors that we

> talked about in theory. A more extensive discussion around those and bringing out examples of it could be even more helpful as a follow-up. (Lee, interview, May 17, 2018)

Karen echoed Lee's comments:

> I think it would have been good to have it as a day, then there's more time for organic conversations. You could also have an intentional reconvene with a moderator two or three weeks later. If it was close enough that you still remember all of what you did but far enough apart that you had time to reflect, it could be helpful. I walked away going, okay, where's the follow-up material that I can take away with me? And we all said, yeah, we're going to talk about this again, but we're so busy that it didn't happen. So having an intentional planned session would be helpful. (Karen, interview, May 11, 2018)

Other participants also suggested either extending the four-hour workshop to a full-day session or scheduling a follow-up workshop to allow more in-depth discussion and analysis around broader issues of roles and connections between roles. A follow-up session would allow for the focus to extend beyond merely defining and clarifying roles, to a discussion around the application of new knowledge to existing team and organizational processes. Lee explained, "Additional conversations could help contextualize and help everyone make meaning of those roles and where they overlap. The connectivity between all the pieces could be better woven together" (Lee, interview, May 17, 2018).

Further, participants reported the need for a list of concrete action items after the workshop that would help create momentum and guide the IDT in addressing potential role stressors and fully realizing effective collaborations within the team. Amy explained:

> I feel like we didn't know, where do we go from here? We got our little rolled up papers and then, what are we going to do with it now? I feel like that would have been good because I don't think we came up with any action items. (Amy, interview, May 9, 2018)

Another theme that emerged regarding the intervention design was the need for greater preparation time to allow participants to reflect on their roles and perceptions before coming to the session, allowing them to formulate them more coherently. Some participants shared that they would have benefited from preparatory materials, such as articles and resources to accompany the agenda. Nora, a faculty participant, also shared, "When we wrote that first question, I think some people were saying, what are we going to do with this? So I think maybe a little bit more information beforehand would be helpful" (Nora, interview, May 16, 2018).

Representation of roles. Role representation was not consistent across the three schools where the intervention was implemented. While the teams from School 1 and School 2 were primarily comprised of instructional designers, instructional technologists, and managers (or executive team members), School 3 included faculty participants ($n = 4$). Participant responses indicated the need for more diverse role representation, both within the IDT as well as with external stakeholders. Specific to faculty representation, Emily shared:

> I think it will be helpful to have maybe one or two faculty present so they can get an idea of our perspective and maybe we can get their perspective of what they're feeling and what their frustrations are and why things aren't done. We can then come up with a plan to work together. Involving faculty or a program lead from each department in the workshop can help bridge ideas and come up with action items to make the process better. (Emily, interview, May 9, 2018)

At the same time, some participants also noted the potential downside to having faculty present during the role analysis exercise. Ronald shared, "I actually think it was a really good idea that there were no faculty. From the perspective of the instructional designers, to get really genuine feedback but not be afraid of ruffling feathers, I think that was a really good idea" (Ronald, interview, May 9, 2018). Participants also expressed that an approach for future programs could be implementing a follow-up session with faculty. Ronald explained:

> When you don't involve faculty, you do miss genuine feedback. You miss the interaction and getting some of the back and forth between the instructional designers and faculty. But, on the positive side, not involving faculty allows for more genuine feedback from the instructional designers without the feeling of being judged. But in the future, having an open discussion between instructional designers and faculty with a third party of arbitrating could be a good thing. For me, it might not be a bad idea for these kinds of workshops to be a two parter—one with and one without faculty. (Ronald, interview, May 9, 2018)

Similar to faculty representation, Roger shared reservations around having leadership present during the intervention:

> Having leadership present is always a double-edged sword in the sense that you can both talk about what kind of help you need as far as role clarity and support goes, but it can also feel like there is some kind of an eye in the sky watching you and feedback is being evaluated. So it's a double-edged sword in that way. It can encourage people to provide feedback but also stifle and make people not be frank about how they feel about their role and position. (Ronald, interview, May 9, 2018)

Another theme was that the interactive and collaborative process seemed more effective when there was more than one participant representing the same role—preferably at least three. For example, the group of four faculty seemed engaged with one another and took the most time to complete the activities. Participants who completed the activities individually finished in the shortest time. Michael, who was the only person representing his role, reflected:

> One thing I would make sure is that there is more than one person for each role. But, when you have two people, it's too easy for them to have a very similar view and agree with each other's views. I think having at least three people for each role would be helpful to make sure there is enough diversity between the individuals and then when it comes to synthesis, they can gain multiple perspectives, synthesize different perspectives and see how they fit into that role. Having more than one and preferably three people representing each role would help people better understand that dichotomy of the individual versus the role. (Michael, interview, May 17, 2018)

Future program design should thoroughly evaluate the advantages and disadvantages of having faculty and leadership representation during the role analysis exercise. Perhaps, as one participant suggested, the exercise can be offered independently for the IDT and faculty or individuals in leadership roles.

Discussion

Given the complexity of instructional design for online courses and the diverse roles assumed by individuals involved, role ambiguity in instructional design teams (IDTs) can contribute to ineffective design practices in instructional design. Thus, a role analysis intervention was designed to decrease role ambiguity and promote role clarification among members of IDTs in higher education. The research questions focused on the extent to which the

role analysis exercise resulted in a decrease in role ambiguity (outcome evaluation), participants' perceptions of the value of the role analysis exercise and its potential to decrease role ambiguity (outcome evaluation), and the fidelity with which it was implemented (process evaluation).

Although many types of role clarification interventions have been implemented in organizational settings, this is the first study that has explored the potential for a role analysis exercise to decrease role ambiguity among IDTs involved in online course development. The findings suggested that the role analysis intervention did not result in a decrease in role ambiguity as measured by the Role Ambiguity (RA) subscale in Pareek's Organizational Role Stress (ORS) scale. In contrast, the intervention elicited a statistically significant median increase in role ambiguity after the intervention compared to before the intervention, indicating that participants reported experiencing an increase in role ambiguity after the role analysis intervention. On closer investigation, several factors could have contributed to this finding.

First, considering that the topics of roles, role stressors, and role analysis have not been previously explored in a formal setting among the participating IDTs, it is possible that the intervention increased participants' awareness of the existence of role stress and uncovered areas of uncertainty. This new knowledge, coupled with the intervention lacking in concrete action items to address the identified issues, could have resulted in an unintended effect of increased role ambiguity after the intervention. Second, considering that participants completed the post-test two weeks following the intervention, the interim happenings between the pre- and the post-test could have influenced the results. Third, the role analysis intervention consisted of a four-hour workshop. It is possible that the outcomes would have been more beneficial to decreasing role ambiguity if more sessions (or an extended session) were provided. Finally, pre-test and post-test instruments measured only role ambiguity, while other related concepts, such as role

conflict and role overload, were not studied. While role ambiguity scores increased, a decrease in role conflict or role overload might have been encouraged through the intervention.

While the quantitative measure did not indicate a decrease in role ambiguity following the intervention, qualitative data obtained through written reflections, group debrief, field notes, and follow-up interviews revealed several important themes relevant to participants' perceptions of the value of the role analysis exercise and its potential to decrease role ambiguity. Participant responses demonstrated the intervention's potential to: (a) promote collaboration between faculty and staff, (b) provide clarification of roles and expectations, (c) reveal different perspectives and expectations of roles, and (d) promote self-reflection and analysis of one's own roles. Further, it gave participants the opportunity to validate the presence of role stress in IDTs and underscored the ways in which role stressors exist within online learning contexts. Finally, consistent with past findings (Dooley et al., 2007; Hokanson & Miller, 2009; Pan & Thompson, 2009; Ritzhaupt & Kumar, 2015), it confirmed the diverse and constantly evolving roles of individuals involved in online course development.

Taken together, quantitative and qualitative data can provide a clearer and more comprehensive picture of the value of the role analysis intervention. Although the quantitative results did not yield a decrease in role ambiguity, qualitative analyses were illuminating. As noted above, the increase in role ambiguity reported by participants after the intervention could be an unintended consequence of participating in the role analysis exercise. The process of intentionally reflecting on one's own roles as well as areas where gaps, overlaps, and uncertainties exist could lead to participants' perceptions of heightened levels of role ambiguity. This is consistent with the qualitative data that indicated that the role analysis intervention afforded participants the opportunity to engage in self-reflection as well as recognize the

existence of different perspectives on IDTs' roles and responsibilities. Another reason for the increase could be that the quantitative measure did not adequately capture the complexity of how role stressors, especially role ambiguity, manifest in IDTs. Qualitative measures provided a richer understanding of the value of the role analysis exercise in the IDT context and online education, in general.

An examination of fidelity measures indicated that the intervention design yielded high fidelity in terms of the number of participants recruited to participate, attendance of a four-hour, face-to-face workshop, and participant responsiveness (participation in the activities of the role analysis exercise). The quality of program delivery was measured using data obtained from interviews, written reflections, and group debrief sessions. While participants reported that the intervention helped facilitate the analysis of roles and responsibilities, several practical lessons emerged to enhance the intervention design as well as the quality of facilitation and moderation for future implementation. These included providing: (a) detailed instructions and rules of engagement for participants; (b) opportunities for pre-work and preparatory materials; (c) extending the workshop from four hours to one day to allow more in-depth, meaningful discussions; and (d) a follow-up session that focuses on the application of new knowledge to existing team and organizational processes. Further, ensuring diverse roles are represented and each role has more than one representative to allow for meaningful dialogue and discussions could be beneficial. At the same time, genuine conversations and honest feedback among IDTs might be compromised in the presence of leadership.

Implications for Practice

While limited in sample size and scope, this study revealed results that can be applied to instructional design teams (IDTs) and higher education institutions involved in online course

development. Although a statistically significant decrease was not observed in post-intervention role ambiguity scores, participants reported an increased understanding of roles and expectations. Research indicates the potential benefits of role analysis technique (RAT) to improving organizational and team performance (Buch & Aldridge, 1990; Singh, 1997; Srivastav, 2010). By implementing the role analysis intervention on an ongoing basis, IDTs may realize its potential benefits over time. Knowledge about how role stressors manifest in online education contexts could provide stakeholders with critical information that can lead to improved team communication, motivation, and performance. More work is needed to implement the role analysis intervention appropriately for its use in instructional design contexts. However, this study suggests that a role analysis exercise has the potential to improve the functioning of IDTs and the quality of courses produced by them. Therefore, this study invites future researchers to continue to pursue the study of role analysis intervention to bring clarity to the roles of individuals involved in online course development.

Opportunities for Collaboration between Stakeholders

The study revealed the need for opportunities to promote faculty and staff collaboration in formal and non-formal settings. Considering that role ambiguity can stem from faculty misconceptions around roles and responsibilities, opportunities for interaction between faculty and staff could result in improved communication and expectation setting. Lisa, an instructional technologist, noted:

> Not having a clear channel to communicate with them [faculty] or not knowing what channels to use, there's a feeling of faculty being a protected group and that we can't contact them in certain ways. We need to learn the culture of that, where it originated and how to break it. (Lisa, interview, May 24, 2018)

Another participant, Nancy, explained the importance of clarifying roles and expectations with faculty:

> Role ambiguity could stem from faculty's expectations of teams. They dial the number where they can reach us. Sometimes they don't know the difference between design and tech support. They think Blackboard support is something instructional designers should do. They always look for immediate assistance, like hitting the "0" on customer calls. (Nancy, interview, May 8, 2018)

Similarly, creating opportunities for IDTs to collaborate and engage in meaningful conversations has the potential to result in improved clarity around roles and responsibilities. Ronald shared:

> It would be helpful to have more team exercises to explore dynamics within the group. Also, I would recommend more opportunities for reflections about roles within the group—for example, try to put people in each other's shoes to see things from the other person's perspectives. (Ronald, interview, May 9, 2018)

The need for opportunities to collaborate with team members was also reflected in Kristi's comments:

> It would be helpful to meet regularly and share what we are doing for the week. I would love to hear a two minute debrief of how everyone's doing. That would be a half an hour meeting and then I think we might be a little more on the same page. Perhaps talking about what our career goals are during a staff retreat. This will give us opportunity to talk about how we can help each other grow. (Kristi, interview, May 11, 2018)

The findings suggest the need for institutions to provide opportunities for faculty and staff to get together in non-threatening and collegial environments. Such opportunities can enable mutual knowledge sharing, collaborative efforts, and clarity in each other's roles.

Processes and Policies Surrounding Online Learning

Within instructional design teams (IDTs), several rules, often enforced as policies and procedures, exist to establish certain boundaries around course development processes. Institutional policies can serve as a written course of action to facilitate the seamless functioning of all the processes associated with online learning. Policies can help bring clarity and consistency to the processes associated with online course development. However, for institutional policies to be effective and of value, they should "cascade down from the top organizational level and articulate into faculty goals and rules" (Stacey, 2009, p. 235). Furthermore, institutional policies should be written in clear and concise language, leaving little room for ambiguity and misinterpretation, especially given that some of the issues have the possibility of having serious legal ramifications.

Participants shared the need for clear policies surrounding online course development, including communication of roles and expectations to relevant stakeholders. An instructional designer shared:

> We have policies and processes in place but faculty are not held accountable. In terms of their work with us, they can still get paid their x amount of dollars for a new development or revision and we are the ones who suffer because we are the ones who get it [course content] last minute expected to get it online and expected to work the evenings and weekends. We need to start to build in language [in policies] where you have timelines

and you have deliverables along the way. If you don't meet those milestones, you may not get paid. (Tina, interview, May 11, 2018)

Follow-up interviews with participants also elicited the need for leadership support in ensuring policies are followed. Nancy expressed:

> We are supposed to be collaborating with faculty to make their courses interactive. We are supposed to be innovative and help facilitate student learning in the online environment. But we do get pushback when we resist being task managers or doing things that don't really seem relevant. We end up accommodating these ad hoc requests. It is also messaging expectations to faculty. This is really not my job and we need to set those boundaries. So having that clarity and knowing that, well, if I do push back or I do tell somebody what my responsibilities are and aren't and if that person comes back and is upset about that, somebody from leadership would explain and support us. (Nancy, interview, May 8, 2018)

The communication of expectations to stakeholders—especially faculty—was a recurring theme in participant responses. One participant shared,

> Maybe it's clarifying for faculty what our roles are and ensuring that they understand what their roles are. They don't know where to go. So they come to us and then we tell them that's not really what we're here for and then they feel frustrated because they don't know where to go. (Nancy, interview, May 8, 2018)

Participant responses indicated that there is a need for carefully crafted communication that clearly outlines the roles of individuals involved in online course development. On the other hand, from a faculty perspective, Nora argued that a barrier to communication between faculty and staff is the technical jargon used to describe the roles of IDT members:

> It would be helpful if the team communicated roles and responsibilities without using your own "private language" that only the team understands. Often, the titles are ambiguous to faculty. I use the term Instructional Designer now because I know what an instructional designer does. But your team often uses a private language and they don't realize that they're isolating themselves from faculty who don't understand what they're talking about. You're making it harder for people to know how to ask for help. Some of the language that is used makes what you do a little more opaque than you intended. (Nora, interview, May 16, 2018)

Resources to Support Online Course Development

The need for adequate resources to support online course development is an ongoing issue that should be addressed. Further, a related challenge is the IDT's ability to respond to all institutional needs, not just those specifically for online; rather, the whole gamut of teaching, learning, and instructional technology needs. Several participants shared the need for adequate administrative staffing to handle the operational aspects of online course development. For example, an instructional technologist shared:

> Faculty do not have any administrative staff. I think if the faculty actually were supported the way that they need to be supported, they would then be able to see our [IDT] roles as they are meant. There's no one to give them messages or put a note on their door when they are going to be late for class. Those are their first level needs. If their first level needs aren't being met, they'll never be able to take advantage of their second level needs—such as brainstorming with us for a few hours on how we can integrate technology into their classes. (Lisa, interview, May 24, 2018)

Instructional designers also shared the need for administrative staffing to support the team's operations and perform clerical tasks. Amy noted:

> An administrative person can help me with communicating to all the stakeholders, sending documents to the editor, uploading closed captioning, and doing quality assurance. That kind of stuff would be helpful for me so I could focus on the higher level functions. Someone to handle some basic administrative duties, not to say anything is beneath me, but it would help free up some time that we spend course tagging, filling out the spreadsheet, and those little [administrative] things. (Amy, interview, May 9, 2018)

The physical space where the IDT is located and its proximity to faculty is another resource issue that several participants reported. Organizationally, IDTs can be located in different places in higher education institutions. Ritzhaupt and Kumar (2015) noted that this could range from departments, schools, and colleges, to centers for teaching and learning. At the same time, "the location where an instructional designer is housed has implications for his or her job role within the organization" (Ritzhaupt & Kumar, 2015, p. 64). Proximity to faculty, the location of offices, and prior knowledge (or misinformation) about roles have the potential to influence how the IDT members are perceived. For example, Lisa stated, "Location of the team plays a role in how faculty/others perceive our roles and responsibilities. Closest person is often contacted (staff proximity). Spatial convenience could lead to misaligned role expectations" (Lisa, interview, May 24, 2018). Considering these findings, a practical implication is that organizations should evaluate the physical space of IDTs and take steps to ensure that it is optimal for realizing the team's full potential.

Limitations

There are several limitations to this study including a small sample size, consolidated intervention length, short follow-up period, and the absence of a comparison group. The study sample included 29 instructional design team (IDT) members, recruited from three schools within the same university. The small sample size may be limiting in scope regarding the generalizability of the findings. A larger sample of IDT members from different types of institutions (public, two-year, for-profit, etc.) might reveal more information about the usefulness of the role analysis exercise in decreasing role ambiguity and promoting role clarity. Since all of the participants knew each other prior to participating in the intervention, it is possible that some participants simply went along with what others said to avoid conflict of opinion. Further, the participation of faculty was limited ($n = 4$), and therefore the study did not capture faculty perspectives adequately to address the full scope of the online course development process.

The study participants were all volunteers and may have already been interested in the topic of study. Therefore, they may have been biased toward more positive outcomes and differed in important and unmeasured ways from nonparticipants. Additionally, the intervention involved four hours of face-to-face training delivered as a half-day workshop. This may not be enough time to measure a change in role ambiguity and role clarity. Further, considering that participants completed the post-test two weeks following the intervention, the interim happenings between the pre- and the post-test could have influenced the results. The absence of a comparison group limits the ability to draw any firm conclusions or generalize the results to other IDT contexts in higher education.

Further, the sensitive nature of the intervention topic, as well as the presence of a supervisor, may have inhibited participants from expressing their honest opinions during the

intervention. Participants expressed concerns about sharing genuine feelings during and after the intervention. This came as no surprise given the sensitive nature of the issues discussed during the role analysis exercise. One participant noted that having subordinates in the same room as the supervisor was a hindrance to having honest conversations and sharing "the true state of the team" (Ivan, interview, May 5, 2018). Some participants also worried about offending others and stirring up negative feelings. Kristi shared, "I couldn't help feeling a little bit of the awkwardness during the workshop because of the nature of the topics we were discussing" (Kristi, interview, May 11, 2018). She added, "I was worried that people are going to think I hated my job or that I hate how people look at my role. But I didn't have any of that and I just truly wanted to explore it." Roger who is in a leadership role expressed:

> I was a little bit concerned with how candid the feedback would be from them [team]. I do wonder what kind of feedback you would have gotten or what would have happened had you done some of that stuff without us [leadership] in the room. In the sense that how much more candid they might have been about some of their frustrations. I worry in situations like that. I fully understand the approach of stepping back and letting things happen because you don't want to overpower the conversation or influence them. I'm always concerned about that. (Roger, interview, May 16, 2018)

Even though the facilitator took measures to establish that the intervention environment was a *safe space* and the goal was to engage in constructive conversations, the sensitive nature of the topic and presence of a supervisor could have inevitably inhibited candid responses from participants. As one participant explained, in the presence of a supervisor, "you will be little more cautious about what you say and do, and if there's that sense of tension already, that would

change the dynamic" (Karen, interview, May 11, 2018). Therefore, representation of roles during the role analysis exercise should be carefully evaluated.

Conclusion

Literature shows that role overload, role ambiguity, and role balance (e.g., time spent on each role) are potential challenges concerning online education (Briggs, 2005). This study contributed to taking the first step toward recognizing and understanding the potential for role stressors to negatively influence instructional design team (IDT) performance and the quality of online course design process, and consequently, the quality of online courses delivered by higher education institutions. Thus, the role analysis intervention was an important first step in the development of opportunities for IDTs to (a) analyze key roles within the context of existing online course development processes; (b) identify limited perceptions or misperceptions around the roles that could affect role effectiveness; and (c) develop clarity around the specific roles of IDT members in contributing to online course development processes and the overall quality of online courses. Additional research is needed to assess the value of the role analysis exercise and its potential to decrease role ambiguity in IDTs and to explore additional measures of this complex concept.

Additionally, this study revealed implications for practitioners and policymakers in online education contexts. These included the importance of ongoing collaboration between faculty and staff in formal and non-formal settings and the need for consistent policies and processes that clearly outline the roles and responsibilities for individuals involved in the online course development process—such as instructional designers, instructional technologists, project managers, multimedia personnel, videographers, executive team members, faculty and/or subject

matter experts. Finally, it also brought to the forefront the need for resources to support the work of faculty and staff responsible for designing, developing, and facilitating online learning.

Further research needs to be conducted to determine how role analysis interventions can support IDTs in minimizing role ambiguity and promoting role clarity. Ultimately, interventions such as the role analysis technique (RAT) should be integrated into the IDT's existing processes (Srivastav, 2006). Duke (2014) pointed out that designing a program or intervention should be iterative. IDTs should evaluate and reevaluate the quality of instructional design processes, and the roles and responsibilities of the members involved in those processes. Deming's (1986) continuous improvement model recommended a plan-do-study-act cycle where teams can engage in continuous improvement. By implementing the role analysis exercise on a routine basis, the IDT can expect continuous improvement through planned changes—that is, clarification of roles and decrease in role ambiguity.

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Appendices

Appendix A

Needs Assessment Data Collection Instrument

Research Survey: Examining the Impact of Role Stressors on the Quality of the Online Course Design Process

Demographic Questionnaire:
The following questions ask about your background and your demographic characteristics. The purpose of this information is only to describe the group of all respondents for the purpose of comparison with other research studies. Individual responses will not be disclosed or shared with any person working in your institution. Your answers will be kept strictly confidential and will not be used to identify you or any of your responses in this study. You have the right not to answer any questions, should you feel uncomfortable.

1. Choose your role from the following (check all that apply):
    - Faculty
    - Instructional Designer
    - Instructional Technologist
    - Project Manager
    - Executive Team Member (Director etc.)
    - Other (please specify): _____

2. At what type of institution do you work?
    - Public, four-year institution
    - Private, four-year institution
    - Public, two-year college
    - Private, two-year college
    - For-profit institution

3. Please select your appropriate age range:
    - 18-30
    - 31-40
    - 41-50
    - 51 and above

4. What is your gender?
    - Male
    - Female

5. What is your ethnicity? (Choose all that apply)
    - White (non-Hispanic)
    - Hispanic/Latino
    - African American

- Asian
- Native American
- Native Alaskan or Pacific Islander
- Other (please specify): _____

6. What is the highest level of education you have completed?
   - High school/GED
   - Some college
   - 2-year college degree (Associate's)
   - 4-year college degree (Bachelor's)
   - Advanced degree (Master's or other)
   - Other (please specify): _____

7. How many years of professional experience do you have in your field?
   - 1-2 years of professional experience
   - 2 to 4 years of professional experience
   - 4 to 5 years of professional experience
   - 5 to 6 years of professional experience
   - 6 or more years of professional experience

Directions:
Please read the statements and questions carefully. Your options for answers will change throughout the survey. Most questions have a number associated with the answer option you agree with the most. Please select the number that corresponds with the option you agree with the most. Please note that there is no right or wrong answer. All that is important is that you indicate your personal feeling.

	To what extent do you agree with the following statements with respect to your role in an instructional design team?	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1.	I have to do things that should be done differently under different conditions	1	2	3	4	5
2.	I receive an assignment without the manpower to complete	1	2	3	4	5
3.	I don't have a clear rule or policy that I need in order to carry out an assignment	1	2	3	4	5
4.	I work with two or more groups who operate quite differently	1	2	3	4	5
5.	I receive incompatible requests from two or more people	1	2	3	4	5
6.	I do things that are apt to be accepted by one person and not by others	1	2	3	4	5
7.	I receive an assignment without adequate resources and materials to execute it	1	2	3	4	5
8.	I work on unnecessary things	1	2	3	4	5

To what extent do you agree with the following statements with respect to your role in an instructional design team?		**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1.	I have clear, planned goals and objectives for my job	1	2	3	4	5
2.	I know that I have divided my time properly	1	2	3	4	5
3.	I know what my responsibilities are	1	2	3	4	5
4.	I know exactly what is expected of me	1	2	3	4	5
5.	I feel certain about how much authority I have on the job	1	2	3	4	5
6.	Explanation is clear of what has to be done	1	2	3	4	5

How often have you experienced the following with respect to your role in an instructional design team?		**Less than once per month or never**	**Once or twice per month**	**Once or twice per week**	**Once or twice per day**	**Several times per day**
1.	How often does your job require you to work very fast?	1	2	3	4	5
2.	How often does your job require you to work on very complex projects?	1	2	3	4	5
3.	How often does your job leave you with little time to get things done?	1	2	3	4	5
4.	How often is there a great deal to be done?	1	2	3	4	5
5.	How often do you have to do more work than you can do well?	1	2	3	4	5

	To what extent do you agree with the following statements regarding the quality of the online course design process at your institution?	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1.	Online course design projects are completed as per the set timeline.	1	2	3	4	5
2.	The online course design process consistently resulted in creating learning activities that actively engage students with the content.	1	2	3	4	5
3.	The online course design process consistently resulted in the clear alignment between student learning outcomes and major course assessments.	1	2	3	4	5
4.	The online course design process consistently resulted in designing activities that promote student-student, student-instructor, and student-content interaction.	1	2	3	4	5
5.	The online course design process consistently resulted in the appropriate alignment of course objectives with assessments, instructional materials, and course technology.	1	2	3	4	5
6.	The online course design process resulted in a complete and error-free product for students.	1	2	3	4	5
7.	The instructional design team made timely progress during the online course design process.	1	2	3	4	5
8.	The instructional design team made exemplary progress during the online course design process.	1	2	3	4	5
9.	Overall, I am satisfied with the collaboration of the instructional design team.	1	2	3	4	5
10.	I would recommend participation in the online course development process to my colleagues.	1	2	3	4	5
11.	Overall, I am satisfied with the online course design and development process.	1	2	3	4	5

Additional Comments

Do you have any additional comments or recommendations that will improve the effectiveness of the online course design process?

Appendix B

Needs Assessment Letter of Consent for Form

Title of Research: Examining the Impact of Role Stressors on the Quality of the Online Course Design Process – Baltimore, MD
Principal Investigator: Veena Radhakrishnan, Johns Hopkins School of Education

PURPOSE OF THE RESEARCH STUDY:
The purpose of this research study is to determine whether role stressors, namely role conflict, role ambiguity, and role overload affect the quality of the online course design process in higher education instructional design teams. The research findings will be beneficial to instructional designers, faculty, and other staff involved in the online course design process.

PROCEDURES:
This Qualtrics survey has four sections and takes approximately 10-15 minutes to complete. Please complete this survey by 05/01/2016.

RISK/DISCOMFORTS:
There are no anticipated risks to the participants.

BENEFITS:
Your participation will contribute to the understanding of the roles and responsibilities of individuals involved in the online course design process and their impact on the timely and satisfactory completion of online course design and development tasks.

VOLUNTARY PARTICIPATION AND RIGHT TO WITHDRAW:
Your participation in this research study is completely voluntary and will be greatly appreciated. If you decide not to participate, there are no penalties, and you will not lose any benefits to which you would otherwise be entitled. You can stop participation in the study at any time, without any penalty or loss of benefits.

CONFIDENTIALITY:
The information you provide via this online questionnaire will remain confidential and anonymous. By completing this questionnaire, you are providing your consent and acknowledging that the data provided anonymously by you can be accessed by the researcher.

COMPENSATION:
You will not receive any payment or other compensation for participating in this study.

IF YOU HAVE QUESTIONS OR CONCERNS:
You can ask questions about this research study at any time during the study by contacting Veena Radhakrishnan at (443) 514-6007 or vradhak1@jhu.edu. If you have questions about your rights as a research participant or feel that you have not been treated fairly, please call the Homewood Institutional Review Board at Johns Hopkins University at (410) 516-6580. Your identity, questions, and concerns will be kept confidential.

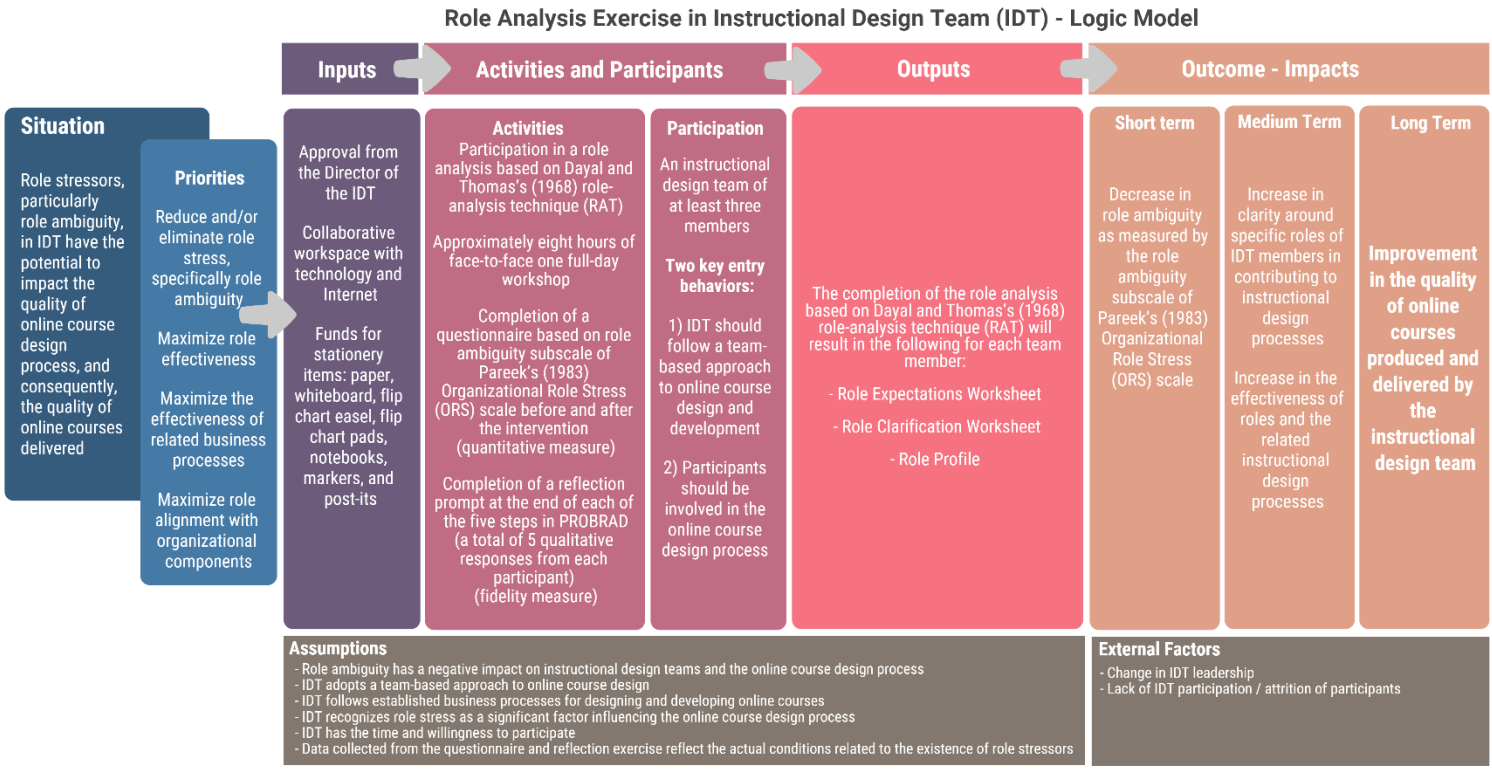
IF YOU WOULD LIKE, YOU CAN PRINT THIS PAGE FOR YOUR RECORDS.
If you would still like to take part in this study, please click the Yes button below.

WHAT YOUR AGREEMENT MEANS:
By clicking "Yes" below, you agree that you understand the information in this consent form. By agreeing to this consent form, you have not waived any legal rights you otherwise would have as a participant in a research study.

- Yes, I would like to participate
- No, I would not like to participate

Appendix C

Intervention Logic Model



Appendix D

Intervention Data Collection Instrument

Demographic Questionnaire:
The following questions ask about your background and your demographic characteristics. The purpose of this information is only to describe the group of all respondents for the purpose of comparison with other research studies. Individual responses will not be disclosed or shared with any person working in your institution. Your answers will be kept strictly confidential and will not be used to identify you or any of your responses in this study. You have the right not to answer any questions, should you feel uncomfortable.

1. Choose your role from the following (check all that apply):
    - Faculty
    - Instructional Designer
    - Instructional Technologist
    - Project Manager
    - Executive Team Member (Director etc.)
    - Other (please specify): _____

2. At what type of institution do you work?
    - Public, four-year institution
    - Private, four-year institution
    - Public, two-year college
    - Private, two-year college
    - For-profit institution

3. Please select your appropriate age range:
    - 18-30
    - 31-40
    - 41-50
    - 51 and above

4. What is your gender?
    - Male
    - Female

5. What is your ethnicity? (Choose all that apply)
    - White (non-Hispanic)
    - Hispanic/Latino
    - African American
    - Asian
    - Native American
    - Native Alaskan or Pacific Islander
    - Other (please specify): _____

6. What is the highest level of education you have completed?
    - High school/GED
    - Some college
    - 2-year college degree (Associate's)
    - 4-year college degree (Bachelor's)
    - Advanced degree (Master's or other)
    - Other (please specify): _____

7. How many years of professional experience do you have in your field?
    - 1-2 years of professional experience
    - 2 to 4 years of professional experience
    - 4 to 5 years of professional experience
    - 5 to 6 years of professional experience
    - 6 or more years of professional experience

Directions:
Please read the instructions carefully before responding. People have different feelings about their roles. Statements describing some of them are given below. Use the answer sheet to write your responses. Read each statement, and indicate how often you have the feeling expressed in the statement in relation to your role in online course development. Use the numbers given below to indicate your feelings.

If you find that the category to be used in answering does not adequately indicate your feelings, use the one closest to the way you feel. Do not leave any item unanswered. Answer the items in the order given below.

Write 0 if you never or rarely feel this way.
Write 1 if you occasionally (a few times) feel this way.
Write 2 if you sometimes feel this way.
Write 3 if you frequently feel this way.
Write 4 if you very frequently or always feel this way.

Role Ambiguity Questionnaire

_____ 1. I am not clear on the scope and responsibilities of my role (job).

_____ 2. I do not know what the people I work with expect of me.

_____ 3. Several aspects of my role are vague and unclear.

_____ 4. My role has not been defined clearly and in detail.

_____ 5. I am not clear as to what are priorities in my role.

Appendix E

Email Sent to the Director of the Instructional Design Team Requesting Approval

Dear [Director's Name],
I am a doctoral student at JHU School of Education. My research focuses on roles that instructional design team members play in the design of online courses. Specifically, I am interested in exploring the potential for role stressors, especially role ambiguity, to exist within instructional design teams and how these stressors could affect the quality of the online course design process, and consequently, the quality of online courses delivered by higher education institutions.

I would like to invite you and your team to participate in a study I am conducting as part of my doctoral dissertation. The study involves the implementation of a role analysis exercise in instructional design teams. Engaging in this exercise along with your team members may give you the opportunity to: 1) analyze key roles within the context of your existing instructional design processes, 2) identify weaknesses in structures, policies, and processes that could affect role effectiveness, and 3) develop clarity around the specific roles of instructional design team members in contributing to instructional design processes and the overall quality of online courses.

Participation in this study will require attending a face-to-face, half a day workshop and completing a few activities that will allow me to collect data regarding participants' experiences.

I greatly appreciate your consideration and hope that you and your team will choose to participate in this study. I look forward to hearing from you.

Best regards,
Veena

Appendix F

Sample Approval Letter from the Director of the Instructional Design Team

From
[Name]
[Title]
[Institution]
[Street Address]
[City, State, Zip]

To
Veena Radhakrishnan
Johns Hopkins School of Education

RE: Permission to Conduct Research at the [*Institution Name*]

Dear Veena,
I am very interested in your topic of dissertation, "A Role Analysis Exercise to Minimize Role Ambiguity and Promote Role Clarity in Instructional Design Teams." I believe the data collected for this study will be beneficial to the improvement of the [*Instructional Design Team Name*]. Therefore, I am pleased to give my support for this valuable research and allow you to conduct the role analysis exercise with online faculty and [Instructional Design Team Name] staff and collect data for your research study. However, please note that it is the decision of the individual faculty and [*Instructional Design Team Name*] staff to choose to participate in the study.

I hope you will share with me your experiences and the results of the study. I anticipate that the results will enhance the roles and responsibilities of the [*Instructional Design Team Name*] and the related instructional design processes. I would be grateful if a summary of your key research findings can be submitted to the [*Department Name*] at the completion of your doctoral studies.

Thank you very much for choosing the [*Instructional Design Team Name*] at the [Institution Name] to implement your research. I wish you all the best.

Sincerely,

[Name]

Appendix G

Recruitment Email Script

Dear [Instructional Design Team Member],
My name is Veena Radhakrishnan and I am a doctoral student at the Johns Hopkins School of Education. My research focuses on roles that instructional design team members play in the design of online courses. Specifically, I am interested in exploring the potential for role stressors, especially role ambiguity, to exist within instructional design teams and how these stressors could affect the quality of the online course design process, and consequently, the quality of online courses delivered by higher education institutions. Being part of a team involved in online course development, I am sure you are aware of the key roles that members of instructional design teams play in designing and developing online courses.

I would like to invite you to participate in a study I am conducting as part of my doctoral dissertation. The study involves the implementation of a role analysis exercise in instructional design teams. Engaging in this exercise along with your team members may give you the opportunity to: 1) analyze key roles within the context of your existing instructional design processes, 2) identify weaknesses in structures, policies, and processes that could affect role effectiveness, and 3) develop clarity around the specific roles of instructional design team members in contributing to instructional design processes and the overall quality of online courses. The research findings will be beneficial to instructional designers, faculty, and other staff involved in the online course development process.

Participation in this study will require approximately four hours of your time (one half-day, face-to-face workshop), completion of a five-question pre- and post-survey to measure role ambiguity (approximately 5-10 minutes to complete), participation in written and verbal reflection exercise about your experience (approximately 45 minutes to complete), and a 30-minute follow-up interview (approximately three weeks after the workshop).

You will be provided light snacks/refreshments during the study.

There are no anticipated risks to the participants. Your participation is completely voluntary and any data collected during the study will be kept secure and confidential.

I am attaching the informed consent form for your review. If you are interested in participating in this study, please sign the form and return it to me via email. If you have any questions about the study, please do not hesitate to contact me at (443) 514-6007 or vradhak1@jhu.edu. You may also contact the principal investigator, Wendy Drexler, at wdrexle1@jhu.edu or (813) 309-4090.

I greatly appreciate your consideration and hope that you will choose to participate in this study. I look forward to talking with you in the future.

Sincerely,
Veena Radhakrishnan

Appendix H

Informed Consent Form

Johns Hopkins University
Homewood Institutional Review Board (HIRB)

Informed Consent Form

Title:	*A Role Analysis Exercise to Minimize Role Ambiguity and Promote Role Clarity in Instructional Design Teams*
Principal Investigator:	*Dr. Wendy Drexler, Johns Hopkins School of Education*
Date:	*January 11, 2018*

PURPOSE OF RESEARCH STUDY:

The purpose of this study is to explore the potential of a role analysis exercise to minimize role ambiguity and promote role clarity among members of instructional design teams. The findings of the study may result in an understanding of how role stressors, especially role ambiguity, can exist in instructional design teams (IDT) and may create opportunities for IDTs to consciously recognize role stress as a significant issue that has the potential to impact the online course design process negatively. The research findings will be beneficial to instructional designers, faculty, and other staff involved in the online course development process. We anticipate that approximately 60 people will participate in this study.

PROCEDURES:

The study consists of participation in a role analysis exercise and will require approximately four hours of your time (one half-day, face-to-face workshop). Participation in this study also requires the completion of a five-question pre- and post-survey to measure role ambiguity (approximately 5-10 minutes to complete), participation in written and verbal reflection exercise about your experience (approximately 45 minutes to complete), and a 30-minute follow-up interview (approximately three weeks after the workshop). Participation in the interview will be audio recorded.

RISKS/DISCOMFORTS:

The risks associated with participation in this study are no greater than those encountered in daily life.

BENEFITS:

There are no direct benefits to you from participating in this study. Your participation may contribute to the understanding of the roles and responsibilities of individuals involved in the online course development process and their impact on the timely and satisfactory completion of online course development tasks.

VOLUNTARY PARTICIPATION AND RIGHT TO WITHDRAW:

Your participation in this study is entirely voluntary: You choose whether to participate. If you decide not to participate, there are no penalties, and you will not lose any benefits to which you would otherwise be entitled. If you choose to participate in the study, you can stop your participation at any time, without any penalty or loss of benefits. If you want to withdraw from the study, please notify the student investigator or the principal investigator at any time at the email address and phone number provided below. Any data collected will be discarded.

CIRCUMSTANCES THAT COULD LEAD US TO END YOUR PARTICIPATION:

Under certain circumstances, we may decide to end your participation before you have completed the study. Specifically, we may stop your participation if we determine that you have not been involved in the development of online courses.

CONFIDENTIALITY:

Any study records that identify you will be kept confidential to the extent possible by law. The records from your participation may be reviewed by people responsible for making sure that research is done properly, including members of the Johns Hopkins University Homewood Institutional Review Board and officials from government agencies such as the National Institutes of Health and the Office for Human Research Protections. (All of these people are required to keep your identity confidential.) Otherwise, records that identify you will be available only to people working on the study, unless you give permission for other people to see the records. All records will be stored in a locked file cabinet in a locked room. Only the investigator and members of the research team will have access to these records.

COSTS:

You are not responsible for any research-related costs.

COMPENSATION:

You will not receive any payment or other compensation for participating in this study.

IF YOU HAVE QUESTIONS OR CONCERNS:

You can ask questions about this research study now or at any time during the study by contacting Veena Radhakrishnan, Student Investigator, at (443) 514-6007 or vradhak1@jhu.edu. You may also contact Wendy Drexler, Principal Investigator, at (813) 309-4090 or wdrexle1@jhu.edu. If you have questions about your rights as a research participant or feel that you have not been treated fairly, please call the Homewood Institutional Review Board at Johns Hopkins University at (410) 516-6580.

SIGNATURES

WHAT YOUR SIGNATURE MEANS:

Your signature below means that you understand the information in this consent form. Your signature also means that you agree to participate in the study.

By signing this consent form, you have not waived any legal rights you otherwise would have as a participant in a research study.

Participant's Signature **Date**

Signature of Person Obtaining Consent **Date**

(Investigator or HIRB Approved Designee)

Appendix I

Observational Protocol and Recording Sheet
(Adapted from Lodico, Spaulding, & Voegtle, 2010)

Date of observation:
Time of observation:
Setting:
Participants:
Observer:

RQ1: To what extent did the role analysis exercise result in a decrease in role ambiguity among instructional design team (IDT) members, as measured by the Role Ambiguity (RA) subscale in Pareek's (1983) Organizational Role Stress (ORS) scale?

Sub-questions:

- What types of interactions do participants have within the team during the role analysis exercise?
- What types of interactions show evidence of greater clarity around specific roles of IDT members in contributing to online course development processes?
- What types of interactions show evidence of increased awareness of role effectiveness, related processes, and alignment with the team and/or organizational components?

Participant Interactions:

Observer Reflections:

Appendix J

Interview Protocol and Recording Sheet
(Adapted from Crewswell, 2017)

Date of interview:
Time of interview:
Place:
Interviewer:
Interviewee:

RQ2: What were instructional design team members' perceptions of the value of a role analysis exercise and its potential to decrease role ambiguity?

Questions:

1. What was your overall experience like taking part in the role analysis exercise?

2. To what extent did the role analysis exercise contribute to decreasing role ambiguity around your role(s) and the roles of your team members?

3. Following the role analysis exercise, has your team utilized or plan to utilize the newly established roles as part of the online course development processes?

4. What are some of the ongoing challenges that you predict might hinder you and your team in establishing clarity around the roles and responsibilities of team members?

5. What support and/or resource would be needed to create further clarification in the roles and responsibilities of individuals involved in the online course development process?

Appendix K

Debrief Activity Questions

The debrief activity will follow the role analysis exercise and is an opportunity for participants to share their experiences and provide feedback for the facilitator. The following questions were devised to guide participants' open-ended discussions.

RQ3: To what extent were all elements of the role analysis exercise based on Dayal and Thomas's (1968) role analysis technique (RAT) implemented as planned?

1. What was your experience like taking part in the role analysis exercise?

2. Were there any specific components of the role analysis exercise that were especially beneficial?

3. To what extent do you have a clearer understanding of your own roles and your team members' roles?

4. What questions, confusions, or insights did the exercise bring up for you about your own and your team members' roles?

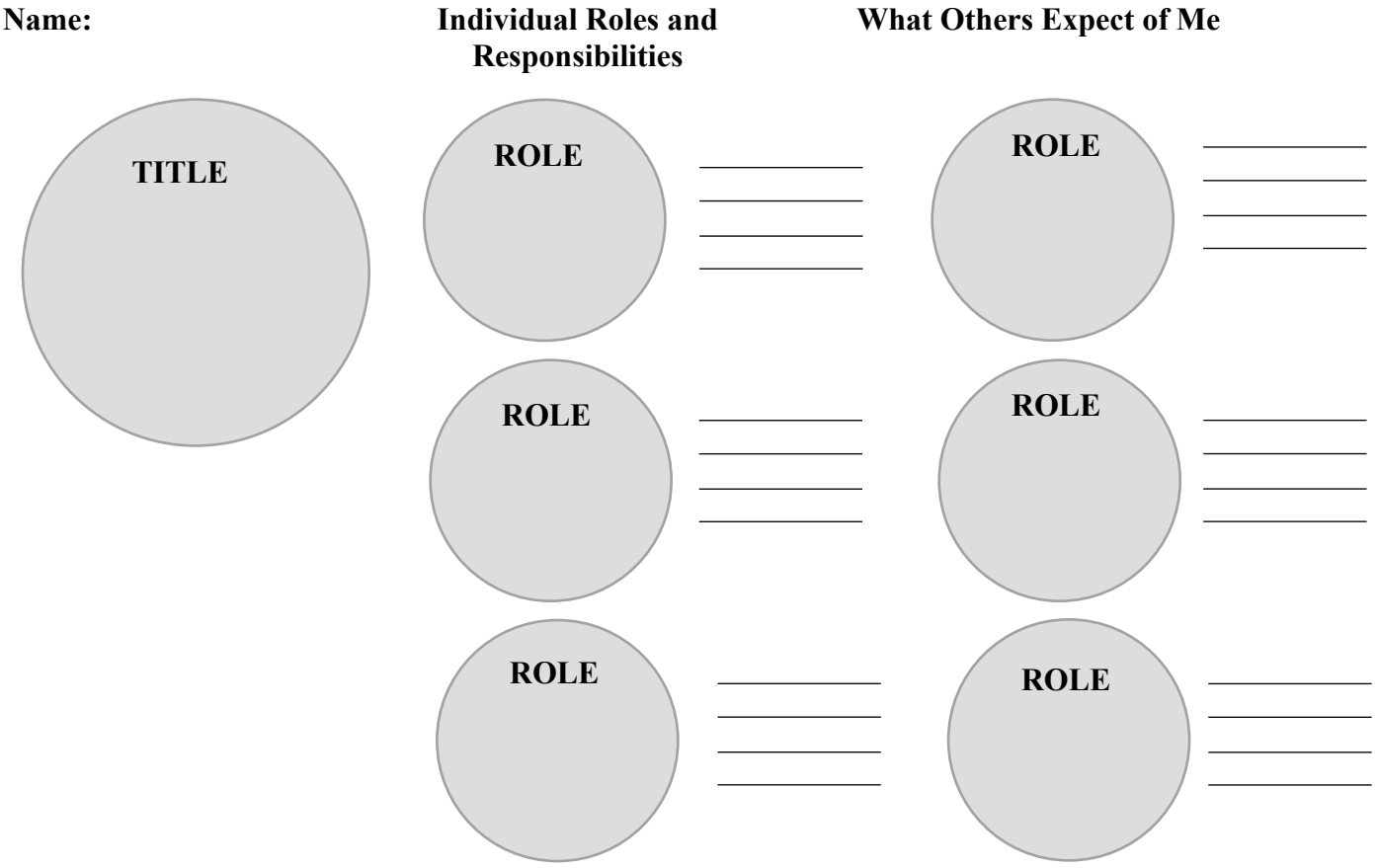
5. Were there any challenges or constraints you faced in completing the activities involved in the role analysis exercise?

6. Do you have any recommendations for improving the exercise?

Appendix L

Role Expectations Worksheet
(Adapted from Carter et al., 2005)

Below, write a brief description of your roles and responsibilities as individual members of the team and how you perceive others' expectations of you. Feel free to add additional circles to represent more roles.



Additional Comments:

_____

_____

_____

Appendix M

Role Profile Worksheet
(Adapted from Srivastav 2012)

Main Purpose of Role:

_____

Role Expectations (Key Responsibilities and Accountabilities)

1. _____

2. _____

3. _____

4. _____

5. _____

Critical Attributes

Educational Qualifications: _____

_____

Knowledge: _____

_____

Technical Skills: _____

_____

Behavioral Skills: _____

_____

Managerial Skills: _____

_____

Experience: _____

_____

Appendix N

Sample Workshop Agenda

Role Analysis Workshop
[Instructional Design Team Name] [School, University]
Date:
Time:
Location:

Meeting called by	Veena Radhakrishnan
Workshop Facilitator	[Facilitator Name] [Title, Institutional Affiliation]
Attendees:	[Participant Name] [Participant Name] [Participant Name] [Participant Name]
9:30 a.m. – 9:45 a.m.	Welcome Participant Introduction Purpose of the Study Informed Consent Pre-Workshop Survey
9:45 a.m. – 10:00 a.m.	Introduction Role versus Title: An Overview
10:00 a.m. – 10:15 a.m.	Icebreaker Activity Marshall Goldsmith's Feedforward Exercise
10:15 a.m. – 10:30 a.m.	Role Analysis Exercise: Activity 1 Individual Roles and Responsibilities
10:30 a.m. – 10:50 a.m.	Role Analysis Exercise: Activity 2 Team Role Expectations
10:50 a.m. – 11:00 a.m.	Break
11:00 a.m. – 11:30 a.m.	Role Analysis Exercise: Activity 3 Role Clarification
11:30 a.m. – 12:00 p.m.	Role Analysis Exercise: Activity 4 Revised Role Profiles
12:00 p.m. – 12:30 p.m.	Debrief Individual Reflections Group Debrief
12:30 p.m. – 12:45 p.m.	Closing Follow-up Activity Reminders
12:45 p.m. – 1:30 p.m.	Q&A, Open Discussion

Curriculum Vitae

VEENA RADHAKRISHNAN
443-514-6007 | veena.radhakrishnan@gmail.com | linkedin.com/in/veenaradhakrishnan

ACADEMIC BACKGROUND

- Doctor of Education
  Johns Hopkins University, School of Education
  Specialization: Instructional Design for Online Teaching and Learning

PROFESSIONAL EXPERIENCE

- **Director of Training Strategy & Design**
  International Society for Pharmaceutical Engineering
  November 2018–Present
- **Adjunct Professor, Digital Media & Web Technologies**
  University of Maryland University College
  Mar 2013–Present
- **Instructional Designer**
  Johns Hopkins Carey Business School
  Jan 2016–October 2018
- **Instructional Designer/Learning Technologist**
  Bowie State University
  Jan 2015–Jan 2016

CERTIFICATIONS

- Online Teaching Certificate, Online Learning Consortium
  Jun 2015–Present
- Certified Master Reviewer, Quality Matters (QM)
  May 2015–Present
- Certified Peer Reviewer, Quality Matters (QM)
  Jul 2013–Present

PRESENTATIONS

- Radhakrishnan, V., & Ariev, P. (2018). Moving beyond compliance and re-conceptualizing instructional design: A context-specific framework for internal online course reviews. *American Educational Research Association 2018 Annual Meeting*. New York, NY.
- Radhakrishnan, V., & Dempsey, P. (2017). Implementation with intention: An integrative framework for quality assurance in online higher education. *Quality Matters Connect Conference*. Fort Worth, TX.
- Radhakrishnan, V., Dempsey, P., & Rennert-Ariev, P. (2017). A systemic approach to quality assurance in online courses [Poster Presentation]. *Online Learning Consortium Conference*. Orlando, FL.
- Radhakrishnan, V., Ariev, P., & Wachira, C. (2017). Moving beyond compliance: A collaborative and context-specific framework for internal Quality Matters (QM) reviews. *Quality Matters Regional Conference*. New York, NY.